

MILITARY INSTRUCTORS
MANUAL

OLD & SCHOLAR BOOKS



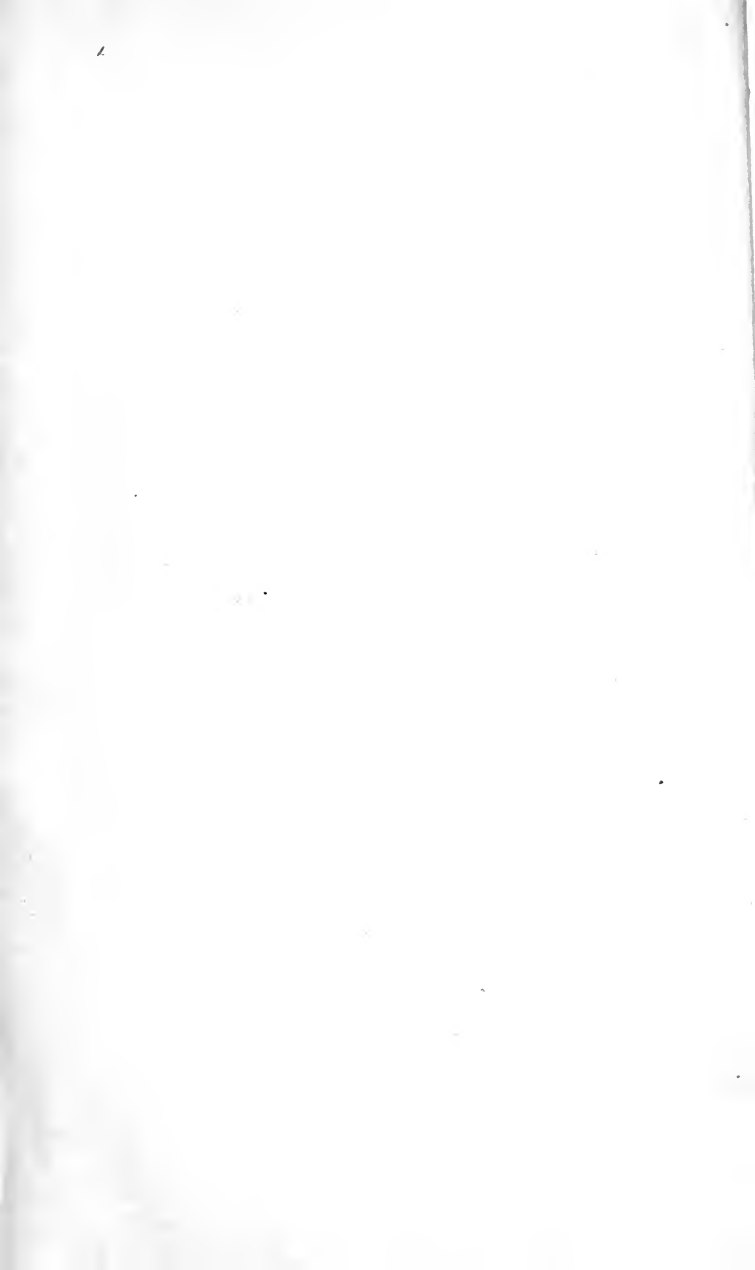
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MILITARY INSTRUCTORS MANUAL

BY

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Plattsburg, N. Y.

AND

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Regiment, Plattsburg, N. Y.



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No. 1

To
COLONEL WOLF

**Under whose careful supervision so many
have received their Military Training in
order that they may show the world in
battle the true spirit of American manhood.**

Acknowledgment.

To have prepared this book within the time allotted to it, without the assistance of Candidates ALCOTT FARRAR ELWELL and LYLE MILTON PROUSE would have been impossible, and grateful recognition is made of their services. Not only much of the manual labor, but the preparation of entire chapters, has been in their hands.

Candidates CHARLES HUNTINGTON JACOBS and MICHAEL FRANCIS McALEER have rendered very valuable assistance and we wish to thank the following candidates for the loan of materials used elsewhere, for type-writing and other work:

GLENN MACK AINSWORTH.

PHILIP M. BROWN.

NELSON P. BUMP.

EDWIN G. BURROWS.

PHILIP DOREMUS.

WALTER LANE HARDENBROOK.

ALBERT BLANCHARD KELLOGG.

HENRY PRATT McKEAN.

LOREN RAY PIERCE.

HARRY RAPHAEL SAFTEL.

ROLAND EMERY PACKARD.

HOYT SHERMAN.

Introduction.

The officer of to-day has big problems to face at short notice. His training has necessarily been so intensive that he cannot absorb a large amount of it. He has little time to make out schedules or even to look over the hasty notes he may have made during his training period, yet he finds himself facing problems which force him to immediate action.

This book so condenses and systematizes general military instruction and the work done at Plattsburg so that it may be easily utilized in training other troops. No broad claim for originality is made except in the arrangement of all available material; the bibliography makes acknowledgment to all texts so utilized. Besides bringing helpful reminders to new officers regarding the elements of modern warfare, much of the material will be found of radical importance, as it is practically new and never before condensed. Since under the new army organization the platoon leader virtually has assumed the roll of a captain of a company, it is not enough for him to know simply his own part; he must be ready with all the information that his non-commissioned officers and men should know, and more important still, he must know how to teach them. Having little or no time to work over and digest for himself this mass of new material pouring in upon him, the officer may find in this book, material condensed and already arranged.

It is hoped that this work will serve to recall to many officers, valuable points of military training which

would otherwise be lost to them in the mass of notes never looked at since the day they were made. More than this, every reader will find help in planning his work, saving thereby precious hours already too full of necessary duties, and will find fresh material for progress in the game of war.

It is the purpose of this book to help men who are in the service of the United States, and through them to share in bringing victory.

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CHAPTER 1.

× **Schedules.**

SCHEDULES.

SCHEDULE OF INSTRUCTION,
Plattsburg, N. Y., August 27

Organization. Issue of Equipment. Organization of Barracks	Drill I. D. R.	Drill Physical M. P. T.
Monday, Aug. 27 7.00-12.00 a. m. 1.30-4.30 p. m.		
Tuesday, Aug. 28	Without arms 7.00-8.00 a. m. pars. 48-73 8.30-10.30 a. m. pars. 101-132	8.00-8.30 a. m. pgs. 1-30
Wednesday, Aug. 29	With arms 7.00-8.00 a. m. pars. 48-100 8.30-10.30 a. m. pars. 101-132	8.00-8.30 a. m. pgs. 1-33
Thursday,* Aug. 30	7.00-8.00 a. m. pars. 48-100 8.30-9.30 a. m. pars. 101-132 9.30-10.30 a. m. pars. 159-158	8.00-8.30 a. m. pgs. 1-36
Friday, Aug. 31	7.00-8.00 a. m. pars. 48-100 8.30-9.30 a. m. pars. 101-132 9.30-10.30 a. m. pars. 159-198	8.00-8.30 a. m. pgs. 1-39
Saturday, Sept. 1. . . .	As prescribed by Senior Instructors.	

SCHEDULES.

3

RESERVE OFFICERS' TRAINING CAMP to September 1, 1917

Practice March	Musketry Training S. A. F. M.	Study	Conferences
		7.00-9.00 p. m. par. 1-21 par. 48-73- 101-132 I. D. R.	
		1.30-3.30 p. m. par. 1-21 S. A. F. M. 7.00-9.00 p. m. par. 74-100 I. D. R.	2.30-4.30 p. m. Care of arms and equipment
Without arms 10.45-11.45 a.m.	1.30-2.30 p. m. par. 1-21	2.30-3.30 p. m. par. 1-31 S. A. F. M. 7.00-9.00 p. m. par. 159-158 I. D. R.	3.30-4.30 p. m. Assembling and adjusting pack
10.45-11.45 a.m. With arms	1.30-2.30 p. m. par. 1-31	7.00-9.00 p. m. par. 159-198 I. D. R.	2.30-4.30 p. m. Assembling and adjusting pack
With arms and light pack 10.45-11.45 a.m.	1.30-3.30 p. m. par. 1-31	7.00-9.00 p. m. par. 199-257- 758-765 I. D. R.	3.30-4.30 p. m. Military Courtesy

SCHEDULES.

SCHEDULE OF INSTRUCTION,
Plattsburg, N. Y., September 3

	Drill I. D. R.	Drill Physical M. P. T.
Monday, Sept. 3	7.00-8.30 a. m. pars. 101-158 159-193	3.30-4.00 p. m. pgs. 1-42
Tuesday, Sept. 4	7.00-8.30 a. m. pars. 48-100 158-198	3.30-4.00 p. m. pgs. 1-45
Wednesday, Sept. 5	7.00-8.30 a. m. pars. 101-158 158-198	3.30-4.00 p. m. pgs. 1-48
Thursday, Sept. 6	7.00-8.30 a. m. pars. 48-100 159-198	3.30-4.30 p. m. pgs. 1-52
Friday, Sept. 7	7.00-8.30 a. m. pars. 101-158 159-198	3.30-4.00 p. m. pgs. 1-55
Saturday, Sept. 8	As prescribed by Senior Instructor.	

SCHEDULES.

5

PLATTSBURG TRAINING CAMP to September 8, 1917

Musketry Training S. A. F. M.	Semaphore Signalling	Companies Practice March Full Kit
8.45-9.45 a. m. par. 1-31	9.45-10.45 a. m.	
10.00-11.00 a. m. par. 1-31	11.00-11.30 a. m.	8.45-9.45 a. m.
8.45-9.45 p. m. par. 1-31	9.45-10.15 a. m.	
10.30-11.30 a. m. par. 1-31		8.45-10.15 a. m.
8.45-9.45 a. m. par. 1-31	9.45-10.15 a. m.	

SCHEDULES.

SCHEDULE OF INSTRUCTION,
Plattsburg, N. Y., September 3

	Grenade Instruction (a)	Bayonet Drill
Monday, Sept. 3	11.00-11.30 a. m.	4.00-4.30 p. m. Lesson 1 Notes on Bayonet Training
Tuesday, Sept. 4	11.30-12.00 m.	4.00-4.30 p. m. Lessons 1 and 2 Notes on Bayonet Training
Wednesday, Sept. 5	10.30-11.00 a. m.	4.00-4.30 p. m. Lessons 1 and 3 Notes on Bayonet Training
Thursday, Sept. 6	11.30-12.00 m.	4.00-4.30 p. m. Lessons 1 and 4 Notes on Bayonet Training
Friday, Sept. 7	10.30-11.00 a. m.	4.00-4.30 p. m. Lessons 1 and 5 Notes on Bayonet Training
Saturday, Sept. 8	As prescribed by Senior Instructor.	

(a) As prescribed by Senior Grenade Instructor.

SCHEDULES.

7

PLATTSBURG TRAINING CAMP

to September 8, 1917—(Concluded)

Voice Culture	Conferences	Study
11.30-12.00 m.	1.30-3.30 p. m. par. 1-100 I. D. R. pgs. 7-46 M. G. D.	7.00-9.00 p. m. pars. 1-158 I. D. R. pgs. 7-46 M. G. D.
	1.30-3.30 p. m. pars. 101-158 I. D. R. pgs. 7-88 M. G. D.	7.00-9.00 p. m. par. 159-174 I. D. R. pgs. 47-88 M. G. D.
11.00-12.00 m.	<i>Physical Exam.</i> 1.30-3.30 p. m. pars. 159-174 part 5, 6, 10, 19 U. S. S. B.	7.00-9.00 p. m. par. 175-198 I. D. R. part III—U. S. Signal Book
	1.30-3.30 p. m. pars. 175-198, 1-61 S. A. F. M.	7.00-9.00 p. m. par. 792-798 I. D. R. par. 1-61 S. A. F. M.
11.00-12.00 m.	1.30-3.30 p. m. pars. 792-798 I. D. R. 1-61 S. A. F. M.	7.00-9.00 p. m. par. 199-220 1-61 S. A. F. M.

SCHEDULES.

SCHEDULE OF INSTRUCTION,
Plattsburg, N. Y., September 10

	Drill I. D. R.	Musketry Training S. A. F. M.
Monday, Sept. 10	7.00-7.30 a. m. pars. 133-150 7.30-8.00 a. m. pars. 123-127 8.00-8.30 a. m. pars. 159-198	8.30-9.30 a. m. pars. 35-43 Sight setting and loadings
Tuesday, Sept. 11	Same as for Monday	9.30-10.30 a. m. pars. 35-51 Sight setting and loadings
Wednesday, Sept. 12	7.00-8.00 a. m. pars. 199-211 8.00-8.30 a. m. pars. 159-193	8.30-9.30 p. m. pars. 35-57 Sight setting and loadings
Thursday, Sept. 13	7.00-8.00 a. m. pars. 199-224 8.00-8.30 a. m. pars. 159-198	10.00-11.00 a. m. pars. 35-60 Sight setting and loadings
Friday, Sept. 14	7.00-8.30 a. m. pars. 159-224	8.30-9.30 a. m. pars. 35-61 Sight setting and loadings
Saturday, Sept. 15	As prescribed by Senior Instructors.	

SCHEDULES.

9

PLATTSBURG TRAINING CAMP
to September 15, 1917

First Aid Manual, N. C. O's and Privates	Signaling Morse Code (wig wag)	Practice March Full Kit
9.30-10.30 a. m. Wounds pgs. 286-288	10.30-11.00 a. m.	
	10.30-11.00 a. m.	8.30-9.30 a. m.
9.30-10.30 a. m. Fractures pgs. 288-290	10.30-11.00 a. m.	
		8.30-10.00 a. m.
9.30-10.00 a. m. Resuscitation pgs. 290-296	10.00-11.00 a. m.	

SCHEDULES.

SCHEDULE OF INSTRUCTION,
Plattsburg, N. Y., September 10

	Grenade Instruction (a)	Drill, Physical M. P. T.
Monday, Sept. 10	11.00-11.30 a. m.	3.30-4.00 p. m. pgs. 1-58 pgs. 133-134
Tuesday, Sept. 11	11.00-11.30 a. m.	3.30-4.00 p. m. pgs. 1-61 pgs. 133-134
Wednesday, Sept. 12	11.00-11.30 a. m.	3.30-4.00 p. m. pgs. 1-64 pgs. 133-134
Thursday, Sept. 13	11.00-11.30 a. m.	3.30-4.00 p. m. pgs. 1-67 pgs. 133-134
Friday, Sept. 14	11.00-11.30 a. m.	3.30-4.00 p. m. pgs. 1-70 pgs. 133-134
Saturday, Sept. 15	As prescribed by Senior Instructors.	

(a) As prescribed by Senior Grenade Instructor.

SCHEDULES.

11

PLATTSBURG TRAINING CAMP

to September 15, 1917—(Concluded)

Bayonet Drill	Conference	Study
4.00-4.30 p. m.	1.30-2.30 p. m. pars. 123-127, 199-223 I. D. R.	7.00-8.00 p. m. pars. 123-127, 199-223 I. D. R.
	2.30-3.30 p. m. pars. 32-61 S.A.F.M.	8.00-9.00 p. m. pars. 32-61 S.A.F.M.
4.00-4.30 p. m.	1.30-3.30 p. m. pars. 225-248 I.D.R. pgs. 5-11 Notes on Bayonet Training	7.00-8.00 p. m. pars. 225-248 I.D.R.
		8.00-9.00 p. m. pgs. 5-11 Notes on Bayonet Training
4.00-4.30 p. m.	1.30-3.30 p. m. pars. 249-257 I.D. R. pgs. 12-19 Notes on Bayonet Training	7.00-9.00 p. m. pars. 249-257 I.D.R. pgs. 12-19 Notes on Bayonet Training
4.00-4.30 p. m.	1.30-2.30 p. m. Patrolling, messages, orders, etc. pgs. 12-24 F. S. R.	7.00-8.00 p. m. Patrolling, messages, orders, etc. pgs. 12-24 F. S. R.
	2.30-3.30 p. m. Notes on Grenade Warfare	8.00-9.00 p. m. Notes on Grenade Warfare
4.00-4.30 p. m.	1.30-2.30 p. m. Advance and Rear Guards pgs. 25-34 F. S. R.	7.00-8.00 p. m. Advance and Rear Guards pgs. 25-34 F. S. R.
	2.30-3.30 p. m. Training & Employ- ment of Bombers	8.00-9.00 p. m. Training & Employ- ment of Bombers

SCHEDULES.

SCHEDULE OF INSTRUCTION,
Plattsburg, N. Y., September 17

	Drill, I. D. R.	Musketry Training S. A. F. M.
Monday, Sept. 17	7.00-8.00 a. m. pars. 48-198 close order only	8.00-8.30 a. m. pars. 32-61
Tuesday, Sept. 18	7.00-8.00 a. m. pars. 48-198 close order only	8.00-8.30 a. m. pars. 32-61
Wednesday, Sept. 19	7.00-8.00 a. m. pars. 48-198 close order only	8.00-8.30 a. m. pars. 32-61
Thursday, Sept. 20	7.00-8.00 a. m. pars. 48-198 close order only	8.00-8.30 a. m. pars. 32-70
Friday, Sept. 21	7.00-8.00 a. m. pars. 48-198 close order only	8.00-8.30 a. m. pars. 32-70
Saturday, Sept. 22	As prescribed by Senior Instructors.	

(a) As prescribed by Senior Instructor in Sketching.

September 24-29, 1917.

PLATTSBURG TRAINING CAMP
to September 22, 1917

Drill, Physical M. P. T.	Sketching (a)	Study
8.30-9.00 a. m. pgs. 1-73, 133-134	9.00-11.30 a. m. 1.30-4.30 p. m.	7.00-9.00 p. m. pgs. 20-34 Notes on Bayonet Training pars. 232-257, I.D.R. pars. 258-276, I.D.R.
8.30-9.00 a. m. pgs. 1-76, 133-134	9.00-11.30 a. m. 1.30-4.30 p. m.	7.00-9.00 p. m. Outposts pgs. 35-42, F.S.R. pars. 277-289, I.D.R.
8.30-9.00 a. m. pgs. 1-79, 133-134	9.00-11.30 a. m. 1.30-4.30 p. m.	7.00-9.00 p. m. Orders pgs. 43-50, F.S.R. pars. 290-326, I.D.R.
8.30-9.00 a. m. pgs. 1-82, 133-134	9.00-11.30 a. m. 1.30-4.30 p. m.	7.00-9.00 p. m. Marches pgs. 51-65, F.S.R. pars. 1-9, 14-18, E. F. M.
8.30-9.00 a. m. pgs. 1-85, 133-134	9.00-11.30 a. m. 1.30-4.30 p. m.	7.00-9.00 p. m. pars. 37-42, 61-72, 101-109, E. F. M.

CONSTRUCTION OF TRENCHES.

SCHEDULES.

SCHEDULE OF INSTRUCTION
Plattsburg, N. Y., October 1

		Drill, I. D. R.	Physical M. P. T.
Monday,	Oct. 1	$\frac{1}{2}$ hour pars. 48-198	$\frac{1}{2}$ hour pgs. 86-89 and 142 Arm Combinations
Tuesday,	Oct. 2	Company $\frac{1}{2}$ hour pars. 48-198	$\frac{1}{2}$ hour pgs. 90-93 and 142 Arm Combinations
Wednesday,	Oct. 3	Battalion $\frac{1}{2}$ hour pars. 258-289	$\frac{1}{2}$ hour pgs. 90-93 and 142 Arm Combinations
Thursday,	Oct. 4	Battalion $\frac{1}{2}$ hour pars. 258-289	$\frac{1}{2}$ hour pgs. 17-93 and 142 Arm Combinations
Friday,	Oct. 5	Battalion $\frac{1}{2}$ hour pars. 258-289	$\frac{1}{2}$ hour pgs. 17-93 and 142 Arm Combinations
Saturday,	Oct. 6	As prescribed by Senior Instructors.	

(a) Per Bayonet Program.

PLATTSBURG TRAINING CAMP

to October 6, 1917.

Bayonet (a)	Range Practice (b)	Signalling
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	1 hour Semaphore and Wigwag
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	1 hour Semaphore and Wigwag
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	

(b) Per schedule Senior Instructor Musketry Training.

SCHEDULE OF INSTRUCTION
Plattsburg, N. Y., October 1

		Field Work	Pistol
Monday,	Oct. 1	1 hour Patrolling	$\frac{1}{2}$ hour Nomenclature $\frac{1}{2}$ hour Manual
Tuesday,	Oct. 2		Same as for Monday
Wednesday,	Oct. 3	1 hour Patrolling	$\frac{1}{2}$ hour Manual $\frac{1}{2}$ hour Position and Aiming
Thursday,	Oct. 4		Same as for Wednesday
Friday,	Oct. 5	1 hour Patrolling	Same as for Wednesday
Saturday,	Oct. 6	As prescribed by Senior Instructors.	

SCHEDULES.

17

PLATTSBURG TRAINING CAMP

to October 6, 1917—(Concluded)

Conference	Study	
2 hours pars. 258-274, I. D. R. Prob. 1 to Situation 3. S. P. I.	7.00-9.00 p. m. pars. 263-285, I. D. R. Problem 1, S. P. I.	
2 hours pars. 275-285, I. D. R. Situation 3, Prob. 1. to end of Problem, S. P. I.	7.00-9.00 p. m. pars. 286-304, I. D. R. Problem 2, S. P. I.	
2 hours pars. 286-304, I. D. R. Problem 2, S. P. I.	7.00-9.00 p. m. pars. 305-326, I. D. R. Problem 3 to Situation 4, S. P. I.	
2 hours pars. 305-326, I. D. R. Prob. 3 to Situation 4, S. P. I.	7.00-9.00 p. m. pars. 327-349, I. D. R. Situation 4, Problem 3 to end of Problem, S. P. I.	
2 hours pars. 327-349, I. D. R. Situation 4, Prob. 3, to end of Problem, S. P. I.	7.00-9.00 p. m. Per later announcement	

SCHEDULES.

SCHEDULE OF INSTRUCTION

Plattsburg, N. Y., October

	Drill, I. D. R.	Physical Drill M. P. T.
Monday, October 8	1 hour pars. 48-289 1 hour pars. 123-158 199-224	$\frac{1}{2}$ hour pgs. 17-93, 133-142
Tuesday, October 9	1 hour pars. 48-289 1 hour pars. 123-158 199-224	$\frac{1}{2}$ hour pgs. 17-93, 133-142
Wednesday, October 10	$\frac{1}{2}$ hour pars. 48-289 1 hour pars. 123-158 199-224	$\frac{1}{2}$ hour pgs. 17-93, 133-142
Thursday, October 11	1 hour pars. 48-289 1 hour pars. 123-158 199-224	$\frac{1}{2}$ hour pgs. 17-93, 133-142
Friday, October 12		
Saturday, October 13	As prescribed by Senior Instructors.	

(a) Per Bayonet Program.

SCHEDULES.

19

PLATTSBURG TRAINING CAMP

8 to October 13, 1917.

Bayonet (a)	Range Practice (b)	Signaling
$\frac{1}{2}$ hour	7-30-11.30 a. m. 1.15-4.15 p. m.	
$\frac{1}{2}$ hour	7-30-11.30 a. m. 1.15-4.15 p. m.	
$\frac{1}{2}$ hour	7-30-11.30 a. m. 1.15-4.15 p. m.	$\frac{1}{2}$ hour
$\frac{1}{2}$ hour	7-30-11.30 a. m. 1.15-4.15 p. m.	

(b) Rifle, pistol, machine gun, estimating distances, etc., as prescribed by Senior Instructor Musketry Training.

SCHEDULES.

SCHEDULE OF INSTRUCTION
Plattsburg, N. Y., October 8

	Field Work (Company) (c)	Conferences
Monday, October 8		2 hours Prob. 4 to Situation 5 exclusive, S. P. I. pars. 596-622, I. D. R.
Tuesday, October 9		2 hours Situation 5, Prob. 4 to end of Problem, S. P. I. pars. 623-660, I. D. R.
Wednesday, October 10		2 hours Problem 5, S. P. I. pars. 661-677, I. D. R.
Thursday, October 11		2 hours Problem 6, S. P. I. pars. 678-707, I. D. R.
Friday, October 12	7.00-11.30 a. m. 1.30-4.30 p. m. Advance and rear guards, outposts, patrolling, messages and orders	
Saturday, October 13	As prescribed by Senior Instructors.	

(c) To include conferences and critique on the ground of exercise conducted.

October 15-17, 1917.

October 18-19, 1917. OCCUPATION OF THE TRENCHES
19,

October 20, 1917. 7.30 A. M.-11 A. M. CONFER

PLATTSBURG TRAINING CAMP

to October 13, 1917—(Concluded)

Study		
7.00-9.00 p. m. Problem 4, S. P. I pars. 596-660, I. D. R.		
7.00-9.00 p. m. Problem 5, S. P. I. pars. 661-677, I. D. R.		
7.00-9.00 p. m. Problem 6, S. P. I. pars. 678-707, I. D. R.		
7.00-9.00 p. m. Problem 7 to Situation 5, exclusive pars. 350-370, I. D. R.		
7.00-9.00 p. m. as per later announcement		

CONSTRUCTION OF TRENCHES.

FROM 8.00 A. M. *October* 18, 1917 TO 8.00 A. M. *October* 1917.

ENCE OF TRENCH OCCUPATION, 11 A. M. INSPECTION.

SCHEDULES.

SCHEDULE OF INSTRUCTION.
Plattsburg, N. Y., October 22

	Drill, I. D. R.	Physical Drill M. P. T.
Monday, October 22	1 hour pars. 48-289	$\frac{1}{2}$ hour pgs. 17-93 pg. 149
Tuesday, October 23	1 hour pars. 48-289	$\frac{1}{2}$ hour pgs. 17-93 pg. 149
Wednesday, October 24	1 hour pars. 48-289	$\frac{1}{2}$ hour pgs. 17-93 pg. 149
Thursday, October 25	1 hour pars. 48-289	$\frac{1}{2}$ hour pgs. 17-93 pg. 149
Friday, October 26		
Saturday, October 27	As prescribed by Senior Instructors.	

(a) Per Bayonet Program.

PLATTSBURG TRAINING CAMP
to October 27, 1917

Bayonet (a)	Range Practice (b)	Signaling
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	$\frac{1}{2}$ hour
$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.	

(b) Rifle, pistol, machine gun, estimating distances, etc., as prescribed by Senior Instructor of Musketry Training.

SCHEDULES.

SCHEDULE OF INSTRUCTION,
Plattsburg, N. Y., October 22 .

	Field Work (c)	Conferences
Monday, October 22		2 hours pars. 350-370, I. D. R Review Problems 1-6 S. P. I.
Tuesday, October 23		2 hours pars. 371-401, I. D. R Prob. 7 to Situation 5 S. P. I.
Wednesday, October 24		2 hours pars. 402-442, I. D. R Situation 6, Prob. 7 to end of prob.
Thursday, October 25		2 hours pars. 442-494, I. D. R. Problem 8, S. P. I.
Friday, October 26	7.00-11.30 a. m. 1.30-4.30 p. m. Companies in attack and defense (to include siting of trenches)	
Saturday, October 27	As prescribed by Senior Instructors.	

(c) To include conferences and critique on the ground of exercise conducted.

PLATTSBURG TRAINING CAMP

to October 27, 1917—(Concluded)

Study		
3 hours—1 hour daily and 7.00-9.00 p. m. pars. 371-401, I. D. R. Prob. 7 to Situation 5, S. P. I.		
3 hours—1 hour daily and 7.00-9.00 p. m. pars. 402-441, I. D. R. Situation 6, Prob. 7 to end of Prob. S. P. I.		
3 hours—1 hour daily and 7.00-9.00 p. m. pars. 442-494, I. D. R. Prob. 8, S. P. I.		
3 hours—1 hour daily and 7.00-9.00 p. m. pars. 495-536, I. D. R. Problem 9, S. P. I.		
7.00-9.00 p. m. as per later announcement		

SCHEDULES.

SCHEDULE OF INSTRUCTION,
Plattsburg, N. Y., October 29

	Drill	Physical Drill
Monday, October 29	1 hour Attack Formation [Trench]	$\frac{1}{2}$ hour
Tuesday, October 30	1 hour Attack Formation [Trench]	$\frac{1}{2}$ hour
Wednesday, October 31	1 hour Attack Formation [Trench]	$\frac{1}{2}$ hour
Thursday, November 1	1 hour Attack Formation [Trench]	$\frac{1}{2}$ hour
Friday, November 2		
Saturday, November 3	As prescribed by Senior Instructors.	

(a) Per Bayonet Program.

PLATTSBURG TRAINING CAMP,
to November 3, 1917.

Bayonet (a)	Signaling	Range Practice (b)
$\frac{1}{2}$ hour		7.30-11.30 a. m. 1.15-4.15 p. m.
$\frac{1}{2}$ hour		7.30-11.30 a. m. 1.15-4.15 p. m.
$\frac{1}{2}$ hour	$\frac{1}{2}$ hour	7.30-11.30 a. m. 1.15-4.15 p. m.
$\frac{1}{2}$ hour		7.30-11.30 a. m. 1.15-4.15 p. m.

(b) Rifle, pistol, machine gun, estimating distances, etc., as prescribed by Senior Instructor of Musketry Training.

SCHEDULES.

SCHEDULE OF INSTRUCTION
Plattsburg, N. Y., October 29

	Field Work (c)	Conferences
Monday, October 29		2 hours pars. 495-536, I. D. R. Problem 9, S. P. I.
Tuesday, October 30		2 hours Problem 10, S. P. I. Battle Fire Training (lesson scheduled later)
Wednesday, October 31		2 hours Problem 11, S. P. I. Battle Fire Training (lesson scheduled later)
Thursday, November 1		2 hours Problem 12, S. P. I. Battle Fire Training (lesson scheduled later)
Friday, November 2	Battalions in attack and defense (Field Kit)	
Saturday, November 3	As prescribed by Senior Instructors.	

(c) To include conferences and critique on the ground of exercise conducted.

PLATTSBURG TRAINING CAMP

to November 3, 1917—(Concluded)

Study		
3 hours—1 hour daily and 7.00-9.00 p. m. Problem 10, S. P. I. Battle Fire Training (lesson scheduled later)		
3 hours—1 hour daily and 7.00-9.00 p. m. Problem 11, S. P. I. Battle Fire Training (lesson scheduled later)		
3 hours—1 hour daily and 7.00-9.00 p. m. Problem 12, S. P. I. Battle Fire Training (lesson scheduled later)		
3 hours—1 hour daily and 7.00-9.00 p. m. Problem 13, S. P. I. Battle Fire Training (lesson scheduled later)		
7.00-9.00 p. m. as per later announcement		

(d) During the week each Battalion will be given $\frac{1}{2}$ day's instruction in camouflage under direction Senior Engineer Instructor.

SCHEDULES.

November 5th-9th, 1917.

Infantry Drill Regulations, 2 hours.

March in full kit, $2\frac{1}{2}$ hours.

Signaling, $\frac{1}{2}$ hour.

Physical drill, $2\frac{1}{2}$ hours.

Bayonet, $2\frac{1}{2}$ hours.

Machine gun instruction, $7\frac{1}{2}$ hours.

Field fortification, 10 hours.

Conferences, 10 hours.

Study, 10 hours.

In the study and conferences the following will be taken up:

Manual of Courts-Martial — pp. 305 to end.

First Aid.

Personal Hygiene.

Camp Sanitation.

November 12th-17th, 1917.

Physical, drill, $2\frac{1}{2}$ hours.

Bayonet drill, $2\frac{1}{2}$ hours.

Battalion ceremonies, $1\frac{1}{2}$ hours.

Battalion march, full kit, $2\frac{1}{2}$ hours.

Field fortification and trench warfare, 23 hours.

Study and conferences, 10 hours.

In the study and conferences the following will be taken up:

Trench Warfare.

Grenades

Gas Attack and Defense.

Communication.

November 19th-23rd, 1917.

Physical, drill, $2\frac{1}{2}$ hours.

Bayonet drill, $2\frac{1}{2}$ hours.

Infantry Drill Regulations, $2\frac{1}{2}$ hours.

Company administration and Army regulations, 40 hours.

Ceremonies, parades and reviews, 5 hours.

CHAPTER 2.

Infantry Drill Regulations.

The greatest lesson of the present war is that the keynote of success is discipline. In trenches the direct control of the men is even less than in extended order in open warfare, and only thoroughly disciplined troops with a trusted leader can hope to succeed.

The successful officer will show anger or irritation only in rare cases, and then by design: he will know his men individually and be as considerate of them as possible, ready to do himself what he asks to have done; just in administering punishments; clear in giving his commands and insistent that they be carried out promptly; he will learn from drilling his men the quickest way a desired result can be accomplished, and to give the necessary commands in the most effective manner.

He will read his Infantry Drill Regulations through each month and will always find something that he never knew or has forgotten. He will always consult it before going to drill. In explaining movements he will use blackboard diagrams in conferences. On the field he will take the fewest possible men and have movement executed by the numbers properly before the other men. Then have all the men go through the movement a number of times.

The object of each exercise or drill should be explained to the men whenever possible.

“Success in battle is the ultimate object of all military training.”

School of the Soldier.

INSTRUCTION WITHOUT ARMS.

The object of the facings and marchings is to give the soldier complete control of his body in drills so that he can move easily and promptly at any command.

Attention.

POSITION OF ATTENTION.—This is the position a soldier assumes when in ranks or whenever the command *attention* is given.

In the training of anyone nothing equals the importance of a proper posture; it is the very foundation upon which the entire fabric of any successful training must be founded.

Instructors must persist in the development of this position until the men assume it from habit.

At the command. 1. Company (Squad, etc.), 2. Attention, the following position is assumed:

1. HEELS TOGETHER AND ON A LINE.—If the heels are not on a line, the hips and sometimes even the shoulders, are thrown out of line.

2. FEET TURNED OUT EQUALLY, FORMING AN ANGLE OF 45 DEGREES.—If the feet are not turned out equally, the result will be the same as above.

3. KNEES EXTENDED WITHOUT STIFFNESS.—Muscles should be contracted just enough to keep the knees straight. If locked, men tire easily and faint if at attention a long time.

4. THE TRUNK ERECT UPON THE HIPS, the spine extended throughout its entire length; the buttocks well forward.

The position of the trunk, spine and buttocks is most essential. In extending the spine the men must feel that the trunk is being *stretched up* from the waist until the back is as straight as it can be made.

In stretching the spine the *chest* should be *arched* and raised, *without*, however, *raising the shoulders or interfering with natural respiration.*

5. SHOULDERS FALLING NATURALLY and moved back until they are square.

Being square, means having the shoulder ridge and the point of the shoulder at right angles to a general anterior-posterior plane running through the body.

They should never be forced back of this plane, but out rather in line with it.

6. ARMS HANGING NATURALLY, thumbs against the seams of the trousers, fingers extended, and back of hand turned out.

The arms must not be forcibly extended nor held rigidly; if they are, a compensating faulty curve will occur in the lumbar region.

7. HEAD ERECT, CHIN RAISED until neck is vertical, eyes fixed upon some object at their own height.

Every tendency to draw the chin in must be counteracted.

8. When this position is correctly assumed, the men will be taught to *incline the body forward* until the weight rests chiefly upon the balls of the feet, heels resting lightly upon the ground.

When properly assumed, a vertical line drawn from the top of the head should pass in front of the ear, shoulder and thighs, and find its base at the balls of the feet.

Every tendency toward rigidity *must be avoided*; all muscles are contracted only enough to maintain this position, which is one of co-ordination, of *physical and mental alertness*, that makes for mobility, activity and grace. A man who faints standing at attention has not taken the proper position.

Rests.

POSITION OF REST AND AT EASE.—When men are standing *at rest* or *at ease* they must be cautioned to avoid assuming any position that will nullify the object of the position of Attention. Standing on one leg, folding arms, allowing shoulders or head to droop forward, must be discountenanced persistently until the men form the habit of resting with feet separated but on the same line, hands clasped behind the back,—

head, shoulders and trunk erect. (m.p.t., pp. 21 and 22.)

FALL OUT.—Leave ranks.

REST.—One foot in place. Can talk.

AT EASE.—One foot in place. Silence.

PARADE REST.—Do not slouch down on right foot. Keep chest well up.

EYES RIGHT, 2. FRONT.—Have it snappy.

RIGHT FACE.—To face *in marching* and advance, turn on the ball of either foot and step off with the other foot in the new line of direction. (Do not confuse with the ordinary command, "Right Face.")

RIGHT HALF FACE.—45 degrees, used to show position in Right Oblique.

ABOUT FACE.—Have weight well back. Not necessary to move right foot after turn is made.

HAND SALUTE.—Manner of rendering is index to manner in which all other duties are performed.

FORWARD MARCH.—Shift weight to right foot, *mentally*.

DOUBLE TIME, MARCH.—Tendency to go too fast. Time it. 30 steps in 10 seconds. Take one step quick time, then take up double time.

MARK TIME, MARCH.—Given as either foot strikes the ground. To resume full step, *Forward, March*.

HALF STEP, MARCH.—All steps and marchings executed from a halt, except Right Step, begin with left foot.

RIGHT STEP, MARCH. BACKWARD, MARCH.—Executed in quick time only and at trail, without command. 15 inch Step.

SQUAD, HALT.—Given as either foot strikes the ground.

BY THE RIGHT FLANK, MARCH.—Step off with right foot.

TO THE REAR, MARCH.— Given as right foot strikes the ground. If marching in double time, turn to the rightabout taking 4 steps, in place, in cadence, and step off with left foot.

CHANGE STEP, MARCH.— Being in march; given as either foot strikes the ground.

Manual of Arms.

PURPOSE.— To make the man so accustomed to the rifle that he handles it without a thought.

Eight rules govern the carrying of the piece. See paragraph 75, Infantry Drill Regulations.

Six rules govern the execution of the manual. See paragraph 76, Infantry Drill Regulations.

Commands and Cautions.

ORDER, ARMS.— See that all the fingers of the right hand are around the piece.

PRESENT, ARMS.— Left forearm horizontal and against the body.

PORT, ARMS.— Right forearm horizontal. Left forearm against the body.

RIGHT SHOULDER, ARMS.— Insist on an angle of 45 degrees. Trigger guard in hollow of shoulder. Right hand does the work.

LEFT SHOULDER, ARMS.— Right hand in next to last position grasps small of stock.

PARADE, REST.— Left hand grasps piece just below stacking swivel. Right foot straight back 6 inches.

TRAIL, ARMS.— Piece at angle of about 30 degrees, about 3 inches off the ground.

RIFLE SALUTE.— Left forearm horizontal.

FIX BAYONET.— Parade Rest and resume order after bayonet is fixed.

UNFIX BAYONET.—Parade Rest and resume order after bayonet is unfixed.

INSPECTION ARMS.—Be sure men glance down in chamber and keep hold of bolt handle.

Parade, Rest can be executed only from order arms, and the command Attention follows Parade, Rest.

Any movement not in the manual, *e. g.*, Right, Face, breaks the execution of movements by the numbers. The number of counts in the execution of each command must be remembered.

Distinguish between *raise* and *carry* and *throw*.

School of the Squad.

OBJECT.—To give basic element, the squad, its first lesson in team work.

Team work wins battles just as it does football games.

Avoid keeping men too long at the same movement.

COMPOSITION OF SQUAD.—7 men and a corporal. Never less than 6 nor more than 11 men.

FALL IN.—Instructor 3 paces in front of where center is to be.

FALL OUT.—If under arms, always preceded by Inspection Arms. Does not mean dismissed.

COUNT OFF.—Right file front and rear do not execute eyes right. Front and rear rank men count off together.

INSPECTION ARMS.—

RIGHT DRESS, FRONT:

- (1) Company Commander must establish base file or files before giving the command Right Dress.
- (2) Right flank men remain facing to front.
- (3) Be sure first four men are on desired line and rest of company can easily be made to conform.

INSPECTION ARMS — RIGHT DRESS FRONT (*Con.*):

(4) Right guide may be established at any point desired and at command Right Dress all march to their proper positions without other command, and at the trail.

(5) Have men beyond base files step forward until one pace beyond where new line is to be and then dress back on line established.

GUIDE RIGHT.—Keep head and eyes off the ground. Close in or open out gradually.

TAKE INTERVAL, TO THE RIGHT, MARCH, SQUAD, HALT.—(At command “To the Right”) Rear rank falls back 60 inches. At March, all face to right and leading man of each rank steps off, followed by the others at four-pace intervals, rear-rank men marching abreast of their file leaders. When halted all face to the front.

TO REFORM, ASSEMBLE TO THE RIGHT (LEFT), MARCH.

TAKE DISTANCE, MARCH.—1-2-3-4 front rank, 1-2-3-4 rear rank, 4-pace intervals. Guide in each four is right.

ASSEMBLE, MARCH.—No. 1, Front rank stands fast.

STACK ARMS.—Piece of even number front rank: butt between his feet, barrel to front. Even number rear rank passes piece to file leader.

TAKE ARMS.—Loose pieces are returned by even numbers front rank. If No. 2 of rear rank is absent, No. 1 rear rank takes his place in making or breaking stacks and resumes his post. Pieces are never stacked with bayonet fixed.

OBLIQUE, MARCH.—Taught from Right half face. Half faced to front after obliquing, Forward, March. If at half step or mark time while obliquing, Oblique, March.

IN PLACE, HALT.—All halt and stand fast without changing position of pieces.

RESUME MARCH.—Only given after In place, Halt.

RIGHT TURN.—Turn on moving pivot is used by subdivisions of a column in executing change of direction.

Each rank successively and on same ground executes movement. All except pivot man execute two right obliques. No marking time. Arriving on new line, all take the half step, glance toward marching flank and take full step without command as last man arrives on the line.

RIGHT HALF TURN.—Executed in similar manner.

SQUADS RIGHT.—Turn on fixed pivot is used in all formations from line into column and the reverse. No half step. Right flank man faces to right in marching and marks time. Rest of front rank oblique once to new position. Step off on 5th step.

SQUAD RIGHT ABOUT.—Front rank twice executes squads right.

In rear rank, No. 3 with No. 4 abreast of him on his left and followed in column by the second and first moves straight forward until on prolongation of new line he is to occupy; faces to right in marching and proceeds to place. Then all face to the right in marching, mark time and glance toward marching flank. As last man arrives on new line all step off without command on 9th step.

Deploying as skirmishers and following the corporal are covered under Company Extended Order.

School of the Company.

The company is the basic fighting and administrative unit, and must be easily handled and capable of promptly carrying out the will of its commander.

Team work among the squads, so that the company can be easily managed as a whole, is the purpose of company drill.

Close order drill is for discipline.

Numerical designations of squads or platoons do not change.

Center squad is middle or right middle squad of the company.

8 (6-11) men = 1 squad.

7 (2-7) squads = 1 platoon.

4 platoons = 1 company (250 men, 6 officers).

4 (2-6) companies = 1 battalion (1,026 officers and men).

3 battalions = 1 regiment (3,755, including medical detachment).

2 regiments = 1 brigade (8,210 officers and men).

2 brigades = 1 division (27,152 officers and men).

First Sergeant when not commanding a platoon is opposite the 3rd file from outer flank of first platoon, in line of file closers.

FALL IN.—First Sergeant 6 paces front of center, facing company. Right guide takes post at such point that the center will be 6 paces from and opposite the First Sergeant.

Squad leaders salute and report all present; or Private(s) ——— absent. First Sergeant does not return salute of squad leaders.

Captain takes post 12 paces in front of center of company in time to receive report of First Sergeant, "Sir, all present or accounted for," or names of unauthorized absentees. E. G. A man in hospital might be reported absent by squad leader if he did not know where he was, but First Sergeant would know, and would not report him absent.

Captain returns salute of First Sergeant who then takes his post *without command*.

PLATOON MOVEMENTS IN PLATOON COLUMN.

Leading Platoon, C. O.

On Right into Line.....Right Turn.
 Column RightRight Turn.
 Right Front into Line.....Continue. (Caution) If
 halted, Forward.

Rear Platoon, C. O.

On Right into Line.....Continue. (Caution) If
 halted, Forward.
 Column RightContinue. (Caution) If
 halted, Forward.
 Right Front into Line.....Right Oblique

QUESTIONS WHICH COME UP IN DAILY MILITARY LIFE.

It is well to have a solution on hand.

(1) The company is in line reversed,—16th squad where 1st squad should be. Bring the company into proper line, 1-2-3-4; 5-6-7-8; 9-10-11-12; 13-14-15-16.

(2) You are platoon leader. Your platoon is drilling separately and you get assembled in company line.

16-15-14-13; 12-11-10-9; 4-3-2-1; 5-6-7-8.

What commands do you give to get the platoon into line properly arranged?

(3) You are in charge of the company and find yourself marching into the company street in reverse order. What commands do you give to correct this?

(4) You are marching your company to the rear along a road through a narrow cut. Suddenly around a bend comes an ambulance. To let it pass you must immediately reduce your marching front. What is the quickest method? (This can be used also in arranging the advance party of the outguard.)

(5) You are marching your company in company front, and wish to march in column of platoons. What do you command?

ANSWERS.

- (1) Right (left) by squads.
Column left (right).
Squads right (left)
Company, Halt.
- (2) Forward; 2 March.
On left into line; 2 Platoon; 3 Halt.
- (3) On right (left) into line.
- (4) 1 Squads right; 2 March.
2 By the left flank; 2 March.
- (5) 1 Right by squads; 2 March.
2 Platoons left front into line; Double time;
2 March.

On the O. D. Shirt Collar Insignia is worn as follows:

“On the right side, in the middle of the collar, the letters (U. S.), (U. S. R.), (U. S. N. A.), and the insignia of rank; the letters one inch from the end of the collar and the insignia of rank one-half inch from letters.

On the left side in the middle of the collar, and one inch from the end, the insignia of the arm of the service.”

For Second Lieutenants.

On the right side, in the middle of the collar, and one inch from the end, the letters (U. S.), (U. S. R.), (U. S. N. A.).

On the left side, in the middle of the collar and one inch from the end, the insignia of the arm of service.

When the Star Spangled Banner is played, an officer in uniform if uncovered stands at Attention. If covered he salutes. An officer “Presents his compliments” only to his juniors.

1. COMPANY RIGHT, MARCH; COMPANY, Halt; Forward March.

Being in line to turn. Right-flank man is pivot. Right guide steps back at command March, and marks time.

2. PLATOONS RIGHT, MARCH; Company, Halt; Forward March.

Line to Column Platoons, reverse.

Guides must be covering.

3. SQUADS RIGHT, MARCH; Company, Halt.

Line to Column Squads, reverse.

Line of Platoon to Column Platoons, reverse.

4. RIGHT TURN, MARCH; Forward, March.

Line to change direction. Right guide is pivot. Men do not glance toward flank. Rear rank begins oblique on same ground as front rank.

All take full step at command, Forward, March.

5. COLUMN RIGHT, MARCH.

First Platoon Leader, Right Turn.

Other Platoon Leaders (if halted), Forward; (if marching), cautions, continue the march. All Platoons execute right turn on same ground.

Column of Platoons to change direction.

6. COLUMN RIGHT, MARCH.

Column Squads to change direction.

7. PLATOONS, COLUMN RIGHT, MARCH.

Column Squads to Line of Platoons.

8. SQUADS RIGHT, COLUMN RIGHT, MARCH.

Right by Squads, March.

Line to Column Squads and change direction.

Right guide posts himself and takes 4 short steps. Right Squad conforms.

9. SQUADS RIGHT, PLATOONS, COLUMN RIGHT, MARCH.

Platoons right by Squads, March.

Line to line of Platoons. Guide same as in 8.

10. SQUADS RIGHT ABOUT, MARCH; Company, Halt.
To face or march to the rear.
About Face; Forward, March.
To the rear a few paces.
11. ON RIGHT INTO LINE, MARCH; Company, Halt, Front.
Column Platoons or Squads to line to side.
If executed in double time, leading squad marches double time until halted.
12. RIGHT FRONT INTO LINE, MARCH; Company, Halt, Front.
Column Platoons or Squads to line (front).
In double time, halting and aligning are omitted.
Guide is toward side of first unit in line. If halted, leader of leading unit commands, Forward.
13. PLATOONS, RIGHT FRONT INTO LINE, MARCH; Company, Halt, Front.
Column Squads to Column Platoons.
Line of Platoons to Company line.
14. ROUTE STEP, MARCH.
Muzzles kept elevated. Ranks cover, preserve distances. (If halted, at rest.)
At ease, March. Silence preserved. (Halted, at ease.)
15. RIGHT BY TWOS, MARCH.
All but 2 right files of leading Squad execute in place, Halt.
RIGHT BY FILES, MARCH.
To diminish the front in Column Squads.
16. SQUADS RIGHT FRONT INTO LINE, MARCH.
Twos right front into line, march.
Twos or files to Column Squads. Leading file or files halt.
N. B.— If right by twos, then left into line or reverse.
DISMISS THE COMPANY.— First Sergeant places himself 3 paces to front, 2 paces from nearest flank, salutes,

faces toward opposite flank, commands, Inspection Arms, Port Arms, Dismissed.

TO FALL IN COMPANY WHEN IT CANNOT BE FORMED BY SQUADS.—Inspection Arms.

Right Shoulder Arms.

Roll Call. Each man as name is called, executes Order Arms.

FOR MUSTER, COMMANDS ARE: Open Ranks, MARCH, FRONT. (At command Open Ranks, Rear Rank drops back 4 steps, 5 counts.)

(As mustering officer approaches) Right Shoulder Arms. Attention to Muster.

Each man, as name is called, answers "Here" and comes to Order Arms.

Company Commander is on right flank, in same place as "Prepare for Inspection."

IN ALIGNING COMPANY.—Captain places himself 2 paces from and facing the flank toward which dress is made, verifies alignment and commands Front.

(Platoon leaders same position for Platoon alignment.)

TO MARCH SQUAD WITHOUT UNNECESSARY COMMANDS.—The Corporal commands, *Follow Me*.

Men always at ease. Squad conform to pace of Corporal, and carry pieces as he does.

In line or skirmish line, No. 2 front rank follows in trace of Corporal at 3 paces. Others guide on No. 2.

AS SKIRMISHERS, MARCH.—At run. Rear rank men on right of file leaders. All conform to Corporals gait. In squad alone, skirmish line is formed on No. 2, front rank, Corporal ahead when advancing, in rear when halted.

Regular interval in skirmish line $\frac{1}{2}$ pace = 1 yard per man.

Squad deployed = 10 paces.

Any number of paces may be specified, *e. g.* As Skirmishers, at 10 paces, March.

ASSEMBLE, MARCH.—Men form on corporal. If he continues to advance, move in double time, form and follow. Do not assemble while marching to rear.

KNEEL.—Left forearm and left lower leg form straight line.

LIE DOWN.—On both knees, then both elbows.

RISE.—Stand on point marked by both knees.
(When deployed, may sit instead of kneel.)

LOADINGS AND FIRINGS.—Loadings are executed only in line and skirmish line.

Firings are always executed at a halt.

When kneeling and lying down in double rank, rear rank does not load, aim or fire.

In both cease firing and suspend firing pieces are loaded and locked. (Sec. 150, i.d.r., April, 1917, is incorrect.)

1. AIMING.—Target carefully pointed out.

2. SIGHT-SETTING ANNOUNCED. (Battle sight if none announced.)

3. (If by volley), Ready, Aim, Squad FIRE.

To continue volley firing, Aim, Squad FIRE.

Volley fire is used against large, compact enemy or in fire of position.

FIRE AT WILL.—Normally employed in attack and defense; 3 shots per minute at effective ranges (600 to 1,200 yards); 5 to 6 shots per minute at close ranges (up to 600 yards).

CLIP FIRE:

Used (1) To steady men.

(2) To produce a short burst of fire.

UNLOAD.—Safety lock up.

EXTENDED ORDER.

A squad acting alone, as one out on a patrol or for instruction, the corporal acts as the leader of a small platoon, leading the advance, and in rear when halted.

Men come to trail as they come on the skirmish line.

On halting, a deployed line faces front (direction of real or assumed enemy), and takes cover.

CORPORAL CAUTIONS.—By the Right Flank (if halted). Corporal steps out looking back to get his 10-pace interval. Squad Halt.

LEFT FACE.—Base squad deploys as soon as it has room.

Guide of a deployed squad is center without command.

Captain indicates point on which corporal of base squad is to march.

COMPANY RIGHT is executed as explained for front rank of Company, but at $1\frac{1}{2}$ pace intervals.

DEPLOYMENTS.

From Line, to Form Skirmish Line to Front.

AS SKIRMISHERS, GUIDE RIGHT, MARCH.—1. If marching, corporal commands, Follow Me. Corporal of base squad moves straight to front, deploys as soon as possible and advances until Company, Halt, is given.

Other squads move to left front and place squads on the line.

If guide is center, other corporals on right of center squad move to the right, and squads on the left to the left, and bring their squads on the line.

If guide is left, other corporals move to right front.

2. If at halt, base squad deploys abreast of its corporal, 3 paces in front of the former line, as soon as it has room.

Other squads are conducted by the left flank, to their places.

TO DEPLOY FROM COLUMN OF SQUADS, FORMING SKIRMISH LINE TO THE FRONT.—If at a halt, base

squad deploys abreast of its corporal 3 paces in front of its former position.

If marching, base squad deploys and moves straight to the front.

If guide is right, other corporals move to left front and place squads on line.

If guide is center, corporals in front move to right (if at a halt, to right rear), the corporals in rear of center squad move to left and come on line in succession.

Column of twos or files are deployed by same commands in same manner.

If deployment in an oblique direction is desired, the captain points out desired direction.

Column of squads may be turned to the flank or rear and then deployed.

ASSEMBLE, MARCH.—In skirmish line, men assemble at a run, to their places individually. Squads do not assemble and march to places as units as do platoons.

PLATOONS, ASSEMBLE.—Men assemble individually on the run, in their platoons and are then marched to relative position on base platoon as indicated by position or command of captain.

PLATOON COLUMNS.—Platoon leaders should be sure to go through center of platoon.

Platoon guides in rear.

Columns should be 20 yards apart, or more.

(Used to take advantage of few favorable routes where cover is poor or ground difficult.)

SQUAD COLUMNS.—Men oblique and follow squad leader. No advantage in cover, but used to advance more quickly over rough or brush grown ground.

(It might be desirable to teach men to take squad columns from column of squads.)

In assembling from Platoon or Squad columns, the men reform by platoons or squads and are conducted by their leaders to point indicated by captain.

Thin lines are used to cross wide stretches under artillery fire or heavy, long range rifle fire which cannot be profitably returned.

No. 1's FORWARD, MARCH.

First line is led by platoon leader, right platoon.

Second line is led by platoon guide, right platoon.

Third line is led by platoon leader, next platoon, etc.

Quick time, unless conditions otherwise demand.

CAPTAIN POINTS OUT NEW LINE.—Original intervals preserved.

DISADVANTAGE.—Serious loss of control over company.

ADVANTAGE.—Offers less definite target and is less likely to draw fire.

BEING IN SKIRMISH LINE.

BY PLATOON (2 PLATOONS, SQUADS, 4 MEN, ETC.), FROM THE RIGHT, RUSH.—Leader of rush usually platoon leader.

- (1) Selects new line.
- (2) Cease firing.
- (3) Prepare to rush.
- (4) Follow me.
- (5) Commence firing.

When whole company rushes, it is led by Captain. Platoon leaders lead their platoons.

COMMANDS.

Commands should be so given as to be distinctly heard by all the men who have to execute them. It is unfair to expect good execution of a slovenly command or one that cannot be heard. A sufficient interval should be allowed between the preparatory command and the command of execution, proportioned to the size of the command, so that each man has time to grasp the movement before execution is required.

School of the Battalion.

BASIS.—4 companies to a battalion.

ARRANGEMENT.—Right to left by rank of Captains. After formation order is not kept with reference to rank of Captains.

NUMBER.—From right to left in whatever direction.

CENTER.—Actual center or right center company.

BAND.—Places itself as if it were an adjoining battalion on right.

DRESSING.—Each company is dressed by its Captain who places himself on the flank toward which the dress is to be made.

In battalion line beside the guide (or beside flank file of the front rank if guide is not in line) facing front.

In column of companies — 2 paces from the guide and facing down the line.

To Form the Battalion.

OTHER THAN CEREMONIES.—Column of squads. Adjutant does not take his post until companies are formed. Each Captain halts company and salutes Adjutant. Adjutant returns salutes and when last Captain has saluted, faces Major and reports "Sir, the Battalion is formed." He joins Major without command.

FOR CEREMONIES.—Or when directed, Battalion is formed in line. Adjutant places himself 6 paces to right of right company and facing in direction line is to extend. Guides precede companies on line by 20 paces. Adjutant causes guides to cover. Companies are halted one pace in rear of line and dressed to right against arm of guide. When guides of left company have been posted, Adjutant by shortest route moves to post facing Battalion midway between post of Major and center of Battalion. Adjutant commands:

1. Guides, 2. Posts, 3. Present, 4. Arms. He then faces about and reports, "Sir, the Battalion is formed." Major commands, "Take your post, sir."

TO DISMISS THE BATTALION.—Dismiss your companies.

TO RECTIFY THE ALIGNMENT.—See Infantry Drill Regulations, paragraphs 273-274.

TO RECTIFY THE COLUMN.—See Infantry Drill Regulations, paragraph 275.

HELPFUL HINTS TO BEGINNERS.—These hold good with few exceptions.

When in column of squads; first command of Captain begins with word "Column."

When in column of companies; first command of Captain begins with word "Squads."

IN COLUMN OF SQUADS.—

Major: *On right (left) into line.*

First Captain: Squads right. (Captain marches beside right guide.)

Rear Captains: Continue to march (If halted, forward).

Major: *March.*

Rear Captains: (Upon uncovering preceding company) Squads right.

Major: *Battalion.*

First Captain: Company.

Major: *Halt.*

First Captain: Right Dress, Front.

Rear Captains: (Coming on line). Company Halt, Right Dress, Front.

Major: *Right (left) front into line.*

First Captain: Column right.

Rear Captains: Column half right.

Major: *March.*

First Captain: (Halts and allows company to pass him and form column of squads to right.) Squads left, Company Halt, Left Dress, Front.

Rear Captains: When company in column of squads arrives one pace in rear of the right flank of the company that has formed in line. Column half right, March. The Captain then takes 5 paces beyond the flank of the last company in line, allows company to pass him, and as rear guide reaches him, commands: Squads left, March, Company Halt, Left Dress, Front.

Major: *Line of companies at* (seven) paces, guide left (right). (Close on first company from column of squads is no longer used in Battalion drill.)

First Captain: Continue to march (if halted, forward).

Rear Captains: Column half right.

Major: *March.*

Rear Captains: (When company reaches a position 7 paces to the flank of the leading company.) Column half right.

Major: *Battalion.*

All Captains: Company.

Major: *Halt.*

Major: *Column of companies, first company* squads right (left).

First Captain: Squads right.

Rear Captains: Continue to march (if halted, forward.).

As each company reaches the point where the first company formed line the Captain commands: Squads right, March.

IN COLUMN OF COMPANIES OR CLOSE COLUMN OF COMPANIES.—

Major: *On right (left) into line.*

First Captain: Right turn.

Rear Captains: Continue to march (if halted, forward).

Major: *March.*

Rear Captains: Each Captain takes 5 paces beyond the left flank of the company that has just executed the turn and commands: Right turn, March.

Major: *Battalion.*

First Captain: Company.

Major: *Halt.*

First Captain: Right Dress, Front.

Rear Captains: (As they come on line.) Company Halt, Right Dress, Front.

Major: *Right (left) front into line.*

First Captain: Company.

Second Capt: Right by Squads.

Third and fourth Captains: Squads Right.

Major: *March.*

First Captain: Halt, Left Dress, Front.

Rear Captains: Column half left, March, Column half right March. Taking 5 paces from the flank of the company last on line and allowing the company to pass by him until the rear guide reaches him, Captain commands: Squads left, March, Company Halt, Left Dress, Front.

Major: *Close on first company* (Never any other).

First Captain: Company.

Rear Captains: Continue to march (if halted, forward).

Major: *March.*

First Captain: Halt.

Rear Captains: As each successive company closes to 8 paces from the company immediately in front, the Captain commands: Company Halt.

Major: *Extend on fourth company.* (Never any other.)

First Captain: Continue to march (if halted, forward).

Rear Captains: Company.

Major: *March.*

Rear Captains: Halt. Then as each company in rear of the leading company gets the proper distance (company front plus 5 paces) the Captain commands: Forward March.

Close column not extended in double time.

Major: *Column of squads, first company* squads right (left).

First Captain: Squads right.

Rear Captains: Continue to march (if halted, forward). As each company reaches the point where the first company formed column of squads, the Captain commands: Squads right, March.

Major: *Column right (left).*

First Captain: Right turn.

Rear Captains: Continue to March (if halted, forward).

Major: *March.*

First Captain: When the marching flank of the company is one pace from the new line the Captain commands: Forward March.

Rear Captains: Other companies march squarely up to the turning point and each changes direction at the Captain's command: Right turn, March, Forward, March.

LINE OF COMPANIES OR CLOSE LINE OF COMPANIES.

Major: *Battalion right (left).*

First Captain: Column right.

Flank Captains: Column half right.

Major: *March.*

Flank Captains: When each company has moved 7 paces to the flank of the base company the command is: Column half right, March. The companies are then marched echeloned with an interval of 7 paces.

Major: *Battalion.*

First Captain: Company.

Major: *Halt.*

Flank Captains: Continue to march. As each company comes into line with the base company the Captain commands: Company, Halt.

Major: *Close on first (fourth) company.*

Extend on first (fourth) company. Both movements executed in the same manner.

First Captain: (If marching.) Halt. (If halted, cautions "Stand Fast.")

Flank Captains: Squads right.

Major: *March.*

Flank Captains: Right Oblique, March. (When the company has closed sufficiently): Forward March, Squads left, March. (Then as the company comes on the line with first company): Company, Halt.

Major: *Column of Squads, first (fourth) company, forward.*

First Captain: Forward.

Flank Captains: Column half right (left).

Major: *March.*

Flank Captains: As their companies come onto the line behind the leading company (at 4.4 paces) the Captain commands: Column half right, March.

IN BATTALION LINE.

Major: *Close on first (fourth) company.*

First Captain: Stand fast (Caution).

Second Captain: Squads right, column right.

Third and fourth Captains: Squads right, column half right.

Major: *March.*

Second, third and fourth Captains: As each company reaches a point 8 paces behind the company just preceding it into close column, the command is given: Column half right, March. (Cautioning "Guide left" when closing on first company — "Guide right" when closing on fourth company): Squads left, March, Company, Halt.

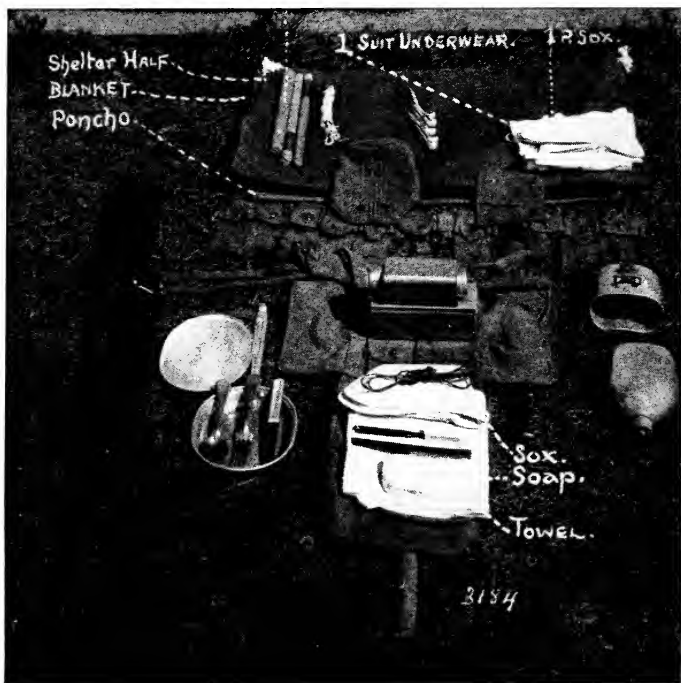
Major: *Halt.*

PLATE No. 2A.



CO. I — N. E. PROPER ARRANGEMENT OF SHELTER TENTS.

PLATE No. 2B.



LAYOUT OF EQUIPMENT FOR INSPECTION.
TENT PINS SHOULD BE LAID IN ECHELON THREE INCHES APART.



First Captain: Right Dress, Front.

Rear Captains: (As they come on the line): Company Halt, Right Dress, Front.

Inspections.

(Kitchen and mess inspections have been covered under Feeding Men.)

Daily inspection of the barracks should be made and rigid discipline enforced as to the floors being kept clean, scrubbed once a week, bedding and bed clothes aired out of doors every Tuesday, shoes cleaned and kept in order under bunks, lockers under bunks, toilet articles and books all kept in order. Sheets, comforters and blankets should be shaken out, folded as for pack and laid on top of pillow until afternoon, each day.

In inspecting men every week see that hair is kept short and feet clean and in good condition, toe nails trimmed. Insist on woolen socks.

Equipment must be inspected carefully, each week, to see that it is in good condition.

SPECIAL POINTS OF COMPANY INSPECTION.

After Open Ranks, March, given from usual position in front of Company, the Captain takes his post 3 paces in front of Right Guide, facing to the left and commands:

1. Front. 2. Prepare for Inspection.

The Lieutenants are 3 paces in front of the center of their respective Platoons, facing to front.

If equipment is also to be inspected, commands are as follows:

1. Close Ranks. 2. March. Stack Arms. Backward, March. Take Interval to the Right, March. Company, Halt.

1. Unslung Equipment. 2. Open Packs.
Close Packs. Sling Equipment.

Battalion Inspection.

At command, Prepare for Inspection, given by the Major, each Captain commands, Open Ranks. They do not salute when the Major and Inspector approach.

The Lieutenants take their places as in Company Inspection. Each Captain commands:

Company Attention. Prepare for Inspection.

Lieutenants face about and stand at ease, after being inspected or passed.

After inspection:

Close Ranks, march.

Rest.

Regimental Inspection.

Commands mean and principles are same as for Battalion. (Look up Post of Colonel, par. 754, Infantry Drill Regulations.)

Ceremonies.

BATTALION REVIEW.

After Battalion is formed in line, Major faces front.

When Reviewing Officer halts, Major turns about and commands:

Present Arms; turns to front and salutes. Major turns about; commands Order Arms, and again faces front.

When Reviewing Officer is within 6 paces, the Major salutes, takes post on the right and accompanies him.

On arriving at the right of the line again, Major salutes, halts, takes his post in front of Battalion and commands:

Pass in Review. Squads Right, March.

Major and Staff execute Eyes Right and take post on right of Reviewing Officer remaining until Battalion has passed, when he salutes and rejoins it.

Double time is given by Major when the Battalion comes to its original starting place and the Battalion

passes in review as before except that Eyes Right is omitted and Major salutes only when he leaves Reviewing Officer.

Major and Staff may be dismounted at discretion of Commanding Officer.

BATTALION PARADE.

When band sounds off, the Reviewing Officer and his Staff stands, if dismounted, with arms folded: if mounted they remain at attention at a convenient distance in front of the center and facing the Battalion.

The Battalion is not presented for Battalion Parade.

The Lieutenants take posts in front of center of their Platoons at Captain's command for dressing his Company on the line.

After Guides Posts, the Adjutant commands:

(To Battalion) Parade Rest.

(To Band) Sound Off.

Battalion, Attention. Present Arms.

At conclusion of National Anthem Adjutant reports:

Sir: The parade is formed.

The Major directs: *Take your post, sir.*

Major then commands: *Order Arms.*

At conclusion of Manual of Arms, Major directs: *Receive the reports, sir.*

Captains report " 'C' Company present or accounted for," or " 'C' Company, 1 officer, 7 enlisted men are absent."

Publish the orders, sir:

After publishing them, Adjutant commands: Officers, Center, March. At command Center, Officers face center: at command March, march to center and halt, facing front.

Commands Forward and Halt are given by Senior Officer. Left Officer of center Company is guide and marches on the Major. Halt at 6 paces from Major, salute and come down with the Major.

At command Officers Posts, March, Officers face about at command "posts" and are conducted by Senior Officer who halts them 3 paces from line. Officers, Halt. Posts, March. Face outward at command, Posts, step off with 4 pace intervals. Lieutenants go to their posts by shortest route, in rear of Company.

REGIMENTAL PARADE.

Lieutenants remain in file closers.

At command, Officers Center, Captains remain at their posts with their Companies.

REGIMENTAL REVIEW.

Regiment formed in line or line of masses.

Colonel commands: Pass in Review.

Each Major commands: 1, *Squads Right*; 2, *March*.

If in line of masses, Colonel commands: "Pass in Review." Major of Right Battalion commands: *Column of Squads, First Company Squads, Right, March*.

FIRE DIRECTION IS THE FUNCTION OF THE CAPTAIN AND HIGHER COMMANDERS. ABOVE THE GRADE OF CAPTAIN AND DIRECTION IS PRINCIPALLY TACTICAL. WITH A CAPTAIN IT IMPLIES THE ABILITY TO ISSUE CORRECT FIRE ORDERS TO MEET GIVEN SITUATIONS IN ORDER THAT THE FIRE OF THE COMPANY MAY BE AS EFFECTIVE AS POSSIBLE.

FIRE CONTROL IS THE COMBINED PRODUCT OF THE FIRE UNIT COMMANDERS AND THE FIRERS. THE FIRE UNIT IS THE PLATOON.

FIRE DISCIPLINE MEANS STRICT ATTENTION TO THE SIGNALS AND ORDERS OF THE COMMANDER, AND IS THE FACULTY DEVELOPED IN THE MEN BY INSTRUCTION AND TRAINING, OF COMMENCING, CEASING, OR DIMINISHING FIRE, OR OF CONCENTRATING IT UPON A DE-

FINED OBJECT IN OBEDIENCE TO THE DELIBERATE WILL OF THE COMMANDER.

NOTE.—It is to be remembered that all grades of commanders are supposed to be familiar with the duties of all below them.

In issuing orders all Officers, in addition to announcing where they will be found will give the location of the next higher Commander.

The authorities for statements under the Platoon Leader and below are not given after each statement but the paragraphs from which they are deduced are given under the heading for each grade. This course was thought necessary to avoid repetition.

I. THE COLONEL.

POSITION — (369, 380, 528 — i.d.r.)

1. Advancing to the battlefield: as

(a) Independent commander ordinarily with the advance guard in order that he may:

1. Receive information promptly.
2. Personally see the situation (reconnoiter).
3. Order the deployment.
4. Begin the action strictly in accordance with his own wishes.

(b) Subordinate commander (427, i.d.r.).

After receiving his order for the action, precedes his command as far as possible in order to:

1. Personally reconnoiter the ground.
2. Be prepared to issue his orders promptly.

Note — For a discussion of the position of leaders see Subject V.

POSITION — (*Continued*):

2. During the action; such as will enable him to:
 - (a) Observe the progress of events.
 - (b) Receive and transmit messages and orders.
 - (c) Be in constant, direct, and easy communication with the reserve. (369, i.d.r.)

DUTIES:

- a. After having received his orders, the regimental commander leads his regiment forward in a column, or in line of columns, until the time arrives for issuing the regimental order, he then: (426, i.d.r.)
- b. Assigns targets and sectors or tasks to battalions and special units. (342, 381 and 426, i.d.r.)
- c. Provides for necessary reconnoissance to front and flank. (428, i.d.r.)
- d. Announces his position and also that of the next higher commander.
- e. Controls the reserve as the tactical situation demands. (441, i.d.r.)
- f. Regulates ammunition supply. (316, f.s.r. and 552, i.d.r.) See also full discussion of the ammunition supply in Subject VIII.

Note — The colonel is assisted in the performance of his duties by the regimental staff.

II. THE MAJOR.

The battalion is the attack unit whether acting alone or as part of a larger force. (305, i.d.r.)

POSITION:

(The general rules for a colonel apply)

1. Where he can best:
 - a. Direct the reinforcing of the firing line from the support. (315, i.d.r.)

POSITION — (*Continued*):

1. Where he can best — (*Continued*):
 - b. Observe the progress of events. (369, i.d.r.)
 - c. Maintain contact with regimental headquarters. (369, i.d.r.)
2. On the firing line when all the supports have joined. (315, i.d.r.) (See Subject V.)

GENERAL.

DUTIES:

1. Conducts his battalion according to sector and mission assigned him.
2. Directs first disposition of battalion by tactical orders, giving subordinates —
 - a. Information of the enemy.
 - b. Position of supporting and neighboring troops.
 - c. The general object to be attained.
 - d. The special problem for each company (291, i.d.r.)
(This includes making the primary apportionment of the target.) (303, i.d.r.)
 - e. If practicable, the point or time at which the fire fight is to open. (304, i.d.r.)
 - f. Orders for flank protection and reconnaissance, unless specifically provided for by higher authority. (293, 397 and 398, i.d.r.)
 - g. His position and that of the next higher commander.
3. Controls supports, dispatches reinforcements from support to firing line. (226 and 297, i.d.r.)
4. Controls subsequent movements by suitable orders or commands. (291, i.d.r.)
5. Regulates ammunition supply — (See Subject VIII, also Pars. 316-317, f.s.r.) (The

DUTIES — (*Continued*):

5. Regulates ammunition supply — (*Continued*):
combat train is the immediate reserve supply of the battalion.)
 - a. Is responsible for the proper use of the combat train.
 - b. Insures maintenance of the prescribed allowance at all times.
 - c. Causes combat trains to march immediately in rear of the battalion unless directed otherwise. (548, i.d.r.)
 - d. When battalion deployed on his own initiative, indicates whether extra ammunition shall be issued. (294, i.d.r.)
 - e. When battalion deployed pursuant to orders from higher authority, causes issue of extra ammunition unless specifically ordered not to do so. (294, 548, i.d.r.)
 - f. When combat wagons are emptied, directs them to proper rendezvous to be refilled. (548, i.d.r.)
 - g. Sees that combat wagons and belts of men are refilled as soon as possible after an engagement. (553, i.d.r.)
6. Maintains contact with adjoining troops. (399 i.d.r.)
7. May harmonize ranges used by the companies on the firing line.
8. Determines when bayonets shall be fixed. (318, i.d.r.)
9. Subject to orders from higher authority, determines the point from which the charge to be made. (319, i.d.r.)
10. Orders the charge. (318, i.d.r.)

1. *In attack*: SPECIAL.

- a. May select formation in which companies advance. (212, i.d.r.)

1. In attack — (*Continued*):

b. Designates —

1. The direction of the objective.
(303, i.d.r.)
2. The companies for the firing line.
3. The companies for the support.
4. The order and front of the companies
in the firing line.
5. The right or left company of the
firing line as the base company.
6. May indicate when the advance by
rushes is to start. (311, i.d.r.)

2. In defense:

- a. Describes front of each company. (292,
i.d.r.)
- b. Assigns sector of fire. (244, 302, i.d.r.)
- c. Locates fire, communicating and cover
trenches.
- d. Directs preparation of obstacles.
- e. Assigns companies to construct trenches
and obstacles.
- f. Details troops to occupy trenches. (321,
i.d.r.)
- g. Causes firing line and supports to fix
bayonets when a charge by the enemy
is imminent. (324, i.d.r.)
- h. Seeks opportunities for counter attacks.
(326, i.d.r.)

III. BATTALION STAFF.

POSITIONS:

Battalion Adjutant
Battalion Sergeant Major } with Major.

Mounted orderlies — both with Major (one with
major and one with Adjutant) until horses are
sent to rear when both may be with the horses or
one take the horses and the other remain with the
major, as he may direct.

DUTIES:

All assist the major in any way directed, by

- a. Reconnaissance. (565, i.d.r., 25, f.s.r.)
- b. Observation of the firing line.
- c. Maintaining contact with regimental headquarters.
- d. Maintaining contact with the support.
- e. Receiving, communicating, and sending visual signals from and to front and rear.
- f. Observing fire effect and progress of events.
- g. Keeping copies of all orders, messages, and other data necessary, for his war diary. (35, f.s.r.)

When there is only one range finder to the battalion, the Battalion Sergeant Major is the Battalion Range Taker. When not actually engaged in taking ranges, he assists the Major as above or, preferably, he may be charged with the duty of maintaining communication with the companies of the firing line.

The major designates a sergeant to take charge of the battalion combat train. Under the Major's direction, he

- a. Conducts combat train as far to the front with the battalion as directed.
- b. Issues ammunition to the battalion.
- c. Takes combat train to rendezvous for refilling, under direction of the regimental commander.
- d. Rejoins battalion, if it is not in action, or, if it be engaged, joins or establishes communication with the regimental reserve. (548, 549 and 553, i.d.r.)

(This sergeant is not provided for in the present organization. Recommendation has been made to the War Department that he be included in the Tables of Organization.)

IV. THE CAPTAIN. (The Fire Director.)

POSITION: *Where he can best:*

1. Control his four platoons. (248, i.d.r.)
2. Observe fire effect. (249, i.d.r.)
3. See the major and platoon chiefs. (234, i.d.r.)

DUTIES: *Before fire action:*

1. Conducts his company to place of deployment assigned by the major's orders (297, i.d.r.) in best manner. (212, i.d.r.)
2. Designates target, and allots part to each platoon. (245 and 249, i.d.r.) (See Overlapping Method, page 15, Subject V. Fire Tactics.)
3. Determines the range. (240 and 249, i.d.r.)
4. Announces the sight setting.
5. Indicates class of fire and
6. Time to open fire. } (249, i.d.r.)
7. Informs the subordinates as to the location of the battalion commander, and, when necessary, announces his own position.

During the Action:

1. Observes fire effect. (249, 414, 415, i.d.r., and 216, s.a.f.m.)
2. Corrects material errors in sight setting. (249, i.d.r.)
3. Prevents exhaustion of ammunition supply. (249, 550, 551, i.d.r.)
4. Distributes ammunition received from rear. (249, i.d.r.)
5. Provides for the collection and distribution of the ammunition of the dead and wounded. (551, i.d.r.)
6. Is on the alert for the Major's signals or commands. (226 and 234, i.d.r.)

DUTIES: During the Action — (*Continued*):

7. In the absence of express directions from the major, if commanding a flank company, determines when advances by rushes shall be attempted. (311, i.d.r.)
8. Indicates size of fractions to rush. (311, i.d.r.)
9. Leads a rush by entire company. (223, i.d.r.)
10. Leads the charge. (319, i.d.r.)
11. When necessary, designates new platoon leaders and sees that new squads are organized and new squad leaders designated to replace those disabled. (104, 375, i.d.r.)

V. BUGLERS.

POSITION:

Join the Captain when the company deploys. (164, i.d.r.)

DUTIES: (235, i.d.r.)

1. *One Bugler* —
 - a. Observes the enemy.
 - b. Observes the target.
 - c. Observes for fire effect.
 - d. Watches platoon leaders for signals.
 - e. Transmits signals to platoon leaders.
2. *The other* —
 - a. Watches the Major for signals and repeats them back.
 - b. Transmits information to the Major.
3. BOTH —
 - a. Repeat bugle signals "charge." (319, i.d.r.)
 - b. Carry field glasses, message pads, pencils and signal flags. (i.u.a.e.m., 387, i.d.r.)
 - c. Act as messengers.

ALL OF THE ABOVE IMPLIES THAT THEY MUST BE PROFICIENT IN:

- a. Signaling — Hand, Arm and Letter Codes.
- b. Observation for fire effect.

DUTIES — (*Continued*):

MUST BE PROFICIENT IN — (*Continued*):

c. Location and definition or description of targets.

d. Bugle calls.

VI. RANGE ESTIMATORS.

Five or six officers or men, selected from the most accurate estimators in the company are designated "Range Finders." (240, i.d.r.)

The term "Range Finder" is a misnomer as a range finder is an instrument. The school uses the term "Range Estimator" when applied to an individual. The attention of the War Department has been called to this.

The range estimators are given special training in the estimation of ranges.

When an action is pending, the Captain receives from the Major the primary apportionment of the target or sector of fire. (303, i.d.r.)

The Captain returns to the company, and, avoiding dangerous grouping, assembles the platoon leaders and range estimators, and points out to both the target of the Battalion and Company.

The Range Estimators immediately begin their estimation of the range to the company target; the Captain meanwhile continues with his instructions to the Platoon Leaders.

The instructions to the Platoon Leaders completed, the Range Estimators announce to the Captain either their individual estimates, or the mean of their estimates as deduced by one of the estimators. The Range Estimators then take their customary posts (240, i.d.r.), and the Captain indicates to the Platoon Leaders the range to be used.

The Range Estimators act in an advisory capacity to the Captain. The mean of their estimates will usually be the most accurate deduction available in

battle. The adoption by the Captain of the range thus determined, however, is not obligatory.

Range Estimators should be ready to signal their estimates of the range to the platoon leaders at any time during the action.

VII. THE PLATOON LEADER.

(The Fire Controller.)

POSITION: Where he can best:

1. Control the squads constituting his platoon. (252, i.d.r.)
2. Observe the target and fire effect. (252, 414, 415, i.d.r., and 216, s.a.f.m.)
3. Observe the captain for signals or commands. (234, 251, i.d.r.)

DUTIES:

(6, 42, 104, 229, 231-233, 244, 245-257, 319, 375, 550, i.d.r.)

Controls the fire of his platoon and in his fire orders.

1. Receives his orders from the company commander.
2. If necessary, may indicate the fire position that has been ordered.
3. Announces sight setting.
4. Points out designated target to his platoon, if practicable, otherwise to his corporals only, or
5. When the target cannot be seen, indicates an aiming target. (247 and 251, i.d.r., call this an aiming "point", but the occasions upon which infantry would use an aiming "point" are so rare that it is believed aiming "target" is a more accurate term as it includes both point and line.)
6. Assigns target so as to insure that the entire front or sector given him by the company commander will be covered with fire.
7. Gives class of fire.

DUTIES — (*Continued*):

8. Announces rate of fire.
9. If commanding a flank platoon, details a man to watch for signals from the combat patrols.
10. When his corporals have signaled that their squads are ready to fire, signals the Captain by looking toward him and holding up his hand.
11. When Captain signals "commence firing", repeats same to the corporals.

THEREAFTER:

1. Observes for fire effect.
2. When platoon is not firing, insures that the front assigned is kept under constant observation for any appearance of the enemy or any change of position.
3. Changes sight-setting of his platoon when necessary.
4. Regulates rate of fire.
5. Increases rate of fire when large and distinct targets appear and decreases it when the target becomes small and indistinct.
6. Prevents decrease in rate of fire when —
 - (1) Changing sight-setting,
 - (2) Preparing for rushes,
 - (3) Fixing bayonets,
 - (4) Transmitting firing data to supports,
 - (5) Distributing ammunition.
7. Increases the rate of fire to cover the advance of adjacent units. For this purpose progress and movements of adjoining units are kept under observation.
8. Maintains direction of advance of his platoon in rushing, so as not to blanket fire of adjacent units.
9. Is on the alert for Captain's commands or signals, for this purpose he may use his platoon guide.

THEREAFTER — (*Continued*):

10. May use his platoon guide to observe adjoining units.
11. Must understand all signals.
12. Leads his platoon in advancing and charging.
13. Prevents changing fire to unauthorized targets.
14. Insures distribution of ammunition brought up from the rear and the collection and distribution of same from the dead and wounded. (540, i.d.r.).
15. In coming up with re-enforcements, he takes over the duties of disabled platoon leaders of the platoon into which his men have dropped, or it may be some other section of the line needs his service in which case he goes there.
16. Endeavors to preserve the integrity of squads, designates new squad leaders to replace those disabled, organizes new squads when necessary, sees that every man is placed in a squad and takes every opportunity for restoring order in the firing line. (104, 375, i.d.r.)
17. In "Advance by thin lines", leads odd numbered lines. (218, i.d.r.).

VIII. THE FIRST SERGEANT.

Commands a Platoon, Never a Guide.

GUIDES.

GENERAL RULES:

1. Guides must be resourceful, have good health, vigorous physique, keen eyesight, presence of mind and courage, with good judgment, military training and experience. They must be able to read maps, make sketches and send clear and concise messages.

2. EQUIPMENT.— Guides are equipped with whistle, watch, compass, message book, knife, pencil, wire cutters, map, pace scale and glasses if possible.

3. As instructors they go where needed.
4. As file closers they insure steadiness and promptness in the ranks.
5. In column of subdivisions the guide of the leading subdivision is charged with the step and direction.

CLOSE ORDER.—The guides of the right and left, or leading and rear, platoons, are the right and left, or leading and rear guides respectively of the company when it is in line or in column of squads. Other guides are in the line of file closers.

In platoon movements the post of the platoon guide is at the head of the platoon, if the platoon is in column, and on the guiding flank if in line. When a platoon has two guides their original assignment to flanks of the platoon does not change.

The guides of a column of squads place themselves on the flank opposite the file closers. To change the guides and file closers to the other flank, the Captain commands: 1. *File closers on left (right) flank*; 2. *March*. The file closers dart through the column; the captain and guides change.

In column of squads, each rank preserves the alignment toward the side of the guide.

Men in the line of file closers do not execute the loadings or firings.

Guides and enlisted men in the line of file closers execute the manual of arms during the drill unless specially excused, when they remain at the order. During ceremonies they execute all movements.

IN TAKING INTERVALS AND DISTANCES.—Unless otherwise directed, the right and left guides, at the first command, place themselves in the line of file closers, and with them take a distance of 4 paces from the rear rank. In taking intervals, at the command "March", the file closers face to the flank and each steps off with

the file nearest him. In *assembling* the guides and file closers resume their places in line.

TO FORM THE COMPANY.—At the sounding of the assembly the first sergeant takes position 6 paces in front of where the center of the company is to be, faces it, draws saber, and commands “Fall in”.

The right guide of the company places himself, facing to the front, where the right of the company is to rest, and at such point that the center of the company will be 6 paces from and opposite the first sergeant; the squads form in their proper places on the left of the right guide, superintended by the other sergeants, who then take their posts.

For the instruction of platoon leaders and guides, the company, when small, may be formed in single rank. In this formation close order movements only are executed. The single rank executes all movements as explained for the front rank of the company.

ALIGNMENTS.—The alignments are executed as prescribed in the School of the Squad, the guide being established instead of the flank file. The rear-rank man of the flank file keeps his head and eyes to the front and covers his file leader.

At each alignment the Captain places himself in prolongation of the line, 2 paces from and facing the flank toward which the dress is made, verifies the alignment and commands: “Front”.

Platoon leaders take a like position when required to verify the alignments.

In “Company right” the right guide steps back on the command “March”, aligning the first two men next to him as he does so, to establish the correct line.

In “Platoon right” the Captain announces the guide and the guides cover promptly.

In “Right turn” the right guide is the pivot of the front rank.

In “Column right” the right flank man of the leading squad is the pivot, *not the guide*.

In "Right by squads" the right guide (when he has posted himself in front of the right squad) takes four short steps and then resumes the full step. The right squad conforms.

"Squads right about." If the company or platoons are in column of squads, file closers turn about toward the column and take posts. If in line, each darts through the nearest interval between squads. The right and left guides place themselves in the new front rank. File closers on facing about, maintain their relative positions.

When the company executes "About face", guides place themselves in the new front rank.

In "Right front into line, double time" halting and aligning commands are omitted. Guide is toward side of the first unit.

In "Take interval" or "Take distance" guides drop back at the first command.

In "Squads right" or "Platoons, column right" interior guides of platoons cross the company. A good rule for beginners is always to cross over (except in "column right").

Guide of a company in line is right (unless otherwise announced).

Guide of a platoon in line is right.

Guide of a battalion in line is center.

Guide of a line of subdivisions is center.

Guide of a deployed line is center.

Guide of a squad is toward the side of the guide of the company.

Guide of successive formations into line is toward the point of rest.

File closers remain on the same side of the company except when in so doing they would be left in front of the company.

If the battalion is in line, the guide away from the point of rest (in each company) comes to the "Right shoulder arms" at the command to dress.

At the command "Eyes right", guides who are charged with the direction do not execute "Eyes right", but simply salute.

At "Retreat" guides unarmed stand at "Attention". Only officers salute.

In "Stack arms" the right guide should align the stacks.

In squads (acting alone) the corporal is the guide; number 2 of the front rank, if the corporal is not in line.

The guides of rear units are charged with the step, trace and distance.

EXERCISE FOR GUIDES.—Lay out a course of arbitrary distance; 200 yards will answer the purpose. Instruct the guides to march the course as they would if they were guiding a company, but being sure to count their steps (a pebble transferred to the left hand at 100 steps is often found useful).

RESULT.—The number of steps will range from 205 to 225. After getting the number of steps taken by each man, show them that they should have taken 240 steps and that each man took too long a step. Have them march back guiding on two points in line as before, cautioning them to cut down the length of the step to 30 inches from the start, and not to wait until they get half way down the course and find that they have less than 120 steps.

RESULT.—All of the men, even after the caution, will have taken too long a step.

Instructor times the guides both ways, and calls attention to the fact that in ALL cases the cadence was under 120 steps per minute.

After repeating above as much as desired have the men march in pairs, one man keeping time and the other counting steps and marching on two points.

They may check up every 10 seconds if desired.

IX. PLATOON GUIDES.

POSITION:

1. Behind the firing line, on left of platoon leader. (163, i.d.r.)
2. Advancing in line — behind center of platoon. (213 and 223, i.d.r.) To insure prompt and orderly advance.
3. "Advance by thin lines"—lead even numbered lines. (218, i.d.r.)
4. Advancing in squad or platoon column—in rear.

DUTIES:

- (104, 213, 223, 229, 252, 367, 375, and 376, i.d.r.)
1. The platoon leader's assistant and may be assigned any duty the platoon leader sees fit.
 2. Keeps adjoining units under observation.
 3. Watches firing line.
 4. Checks every breach of fire discipline.
 5. Prevents skulking, men leaving the ranks at any time to care for wounded, etc.
 6. Designates new squad leaders and organizes new squads when necessary.
 7. Attaches men that have become separated from squads to other squads.
 8. Insures prompt and orderly advance.
 9. On joining firing line from the support takes over duties of sergeants disabled.
 10. May receive and transmit signals to the Captain.
 11. If the platoon leader is disabled, he takes over his duties. Hence he should know what the platoon leader is doing and how.
 12. When taking over the duties of the platoon leader he calls the senior corporal of his platoon out to act as guide.

X. CORPORAL.

POSITION :

1. Marching in line, as center skirmisher of squad (124, i.d.r.) or
2. When skirmish line is halted, immediately behind his squad.

Note.— The School has recommended to the War Department that the Infantry Drill Regulations be changed to provide that the Corporal's position be as prescribed above and in paragraph 20, page 10.

DUTIES :

Paragraphs 42, 222, 252, 254, 255, 411, and 551, i.d.r., cover in general the corporal's duties.

The squad leader (Corporal) controls the fire of his squad, he must understand the duties of the private and in issuing his fire orders :

1. Receives his instructions from the platoon leader.
2. Points out indicated objective to his squad.
3. Takes as the squad target that portion of the platoon target which corresponds to the position of the squad in the platoon.
4. Announces sight setting.
5. Announces class and rate of fire.
6. When his squad is ready to fire, looks toward the platoon leader and holds up his hand. At the platoon leader's signal to commence firing he sees that the squad opens fire.

THEREAFTER :

1. Makes all fire from the shoulder.
2. Makes all use ordered rate of fire.
3. Insures that all fire at designated objective.
4. Prevents slighting of invisible portions of the target for more visible parts.
5. Prevents men from changing fire to unauthorized targets not in the assigned front or sector.

THEREAFTER — (*Continued*) :

6. Maintains constant observation to the front; when squad is firing, for effect of fire — when squad is not firing, for appearance of enemy.
7. Insures prompt obedience to orders to suspend and cease firing.
8. Makes men utilize ground to fullest extent for concealment in firing and advancing.
9. In sight-setting, changing sights and fixing bayonets, has front rank perform operation first (rear-rank men increasing rate of fire) and then the rear-rank follow while the front-rank men make up for loss of fire for the rear rank, thus insuring that the rate of fire for the squad does not fall off.
10. Prevents increasing vulnerability of squad while preparing for a rush, and rushes as soon after cease firing as possible.
11. When other squads of his platoon are rushing, or the platoon which is covering the same target as is his platoon, is rushing he has his squad increase its rate of fire to make up for lost fire effect of the rushing element.
12. In rushing causes men to spring to feet running at full speed, all men to drop to the ground at the same time, and those who are in rear to crawl up to the line.
13. When re-enforcing the firing line, takes over the duties of disabled squad leaders. For this purpose his squad may drop into line at one place and he may move to the next squad on the right or left where there is a squad leader needed. If there are no vacancies caused by disabled squad leaders, he drops into line and assists the squad leaders who are there.
14. Prevents decreasing rate of fire when men are transmitting data to arriving supports.
15. Prevents wasting of ammunition.

THEREAFTER —(*Continued*):

16. Prevents use of 30 rounds in right pocket section of belts except on order of an officer.
17. Distributes ammunition of dead and wounded and ammunition brought up from the rear.
18. Prevents decreasing the rate of fire while ammunition is being distributed.
19. Looks to the rear only at his platoon leader's whistle "Attention." Pays no attention to any other except suspend firing.
20. Takes his position in rear of his squad when it is firing and remains there, where he can control its fire, and only crawls into line and adds his rifle when all control is lost. (Short ranges.)
21. To control his squad he does not walk up and down behind his squad but rolls along behind his line and keeps down.
22. Leads his squad in moving to the front or rear.
23. Must know thoroughly the drill regulation signals and have a good practical knowledge of the theory of fire.
24. In rushing, maintains the direction of advance of his squad so as not to blanket the fire of squads in his rear.
25. Takes advantage of every lull in the action and every favorable opportunity to reorganize his squad and get it more under control.
26. Checks every breach of fire discipline, abates excitement, and prevents any man from leaving the squad to go to the rear for any purpose whatsoever.
27. If called out of line to act as guide, notifies designated private (103, i.d.r.) to take command of squad.

POSITION:

XI. THE PRIVATE.

Deployed in line: One man per yard (125, i.d.r.), unless a greater extension is directed in the order for deployment. (126, i.d.r.)

DUTIES:

(6, 42, 104, 133, 134, 138, 139, 149, 152-156, 203, 209, 233, 247, 251, 254, 255, 319, 354, 367, i.d.r., and 209, s.a.f.m.)

The individual soldier must be trained:

1. To recognize targets from description quickly.
2. To describe and define targets.
3. To use rear sight in describing targets.
4. To use horizontal and vertical clock systems, singly or in combination in describing target.
5. To set sights quickly and accurately as ordered.
6. To bring piece to shoulder, aim carefully and deliberately from habit, and to reload quickly.
7. To fire at the ordered rate. (Par. 18, Standard for Field Firing.)
8. To fire at the part of the designated objective which corresponds to his position in the firing line.
9. To continue firing in the designated sector and not to change therefrom unless ordered.
10. Not to slight invisible parts of the target for more visible ones.
11. To maintain constant observation to the front.
12. To utilize folds of ground for concealment in advancing and firing.
13. To select firing positions.
14. To understand effects of visibility and the selection of backgrounds.
15. To fire from all positions, from behind hillocks, trees, heaps of earth and rocks, depressions, gullies, ditches, doorways and windows.
16. To obey promptly orders to suspend and cease firing.
17. To ignore whistle signals, except suspend firing.
18. To watch closely for the expected target after having suspended firing.

DUTIES —(*Continued*) :

19. To obey promptly all orders from his squad leader.
20. To drop into the nearest interval when reinforcing the firing line and obey the orders of the nearest squad leader.
21. To transmit firing data to men of the supports coming into the line rapidly and accurately, without decreasing his rate of fire.
22. To call for range and target when reinforcing the firing line.
23. To have confidence in his own ability to hit.
24. To a system of sight setting and fixing bayonets in order that there may be no cessation of fire in the unit during this operation.
25. To prepare for rushes without decreasing fire of the unit unduly.
26. To avoid unnecessary movement in preparing for rushes.
27. To spring forward at command "Rush" or "Follow Me" without preliminary rising.
28. To avoid bunching in rushing.
29. Not to swerve to the right or left in search of cover but to advance in a straight line, in order not to blanket the fire of men in his rear.
30. To drop quickly at end of rush and crawl up to line if in rear of it.
31. To remain with his own company, but if he accidentally becomes detached from his company or squad to join the nearest one.
32. To maintain silence except when transmitting or receiving firing data and charging.
33. To retain presence of mind.
34. To be careful not to waste ammunition.
35. To use the thirty rounds of ammunition in the right pocket section of the belt only upon the order of an officer.

DUTIES —(*Continued*) :

36. To remain with the firing line after bringing up ammunition.
37. To utilize ammunition of dead and wounded.
38. Never to attempt to care for dead or wounded during the action.
39. To have confidence in his ability to use the bayonet.
40. To a firm determination to close with the enemy.
41. To preserve the line in charging.
42. To understand that a charge should be slow and steady (the faster men must not run away from the slower ones).
43. To form up immediately after the charge and follow the enemy with fire, not attempting a disorganized pursuit.
44. To understand that it is suicidal to turn his back to an enemy and that, if he cannot advance, he must intrench and hold on until dark.
45. To count distant groups of object or beings.
46. To recognize service targets.
47. NEVER TO FIRE UNTIL HE UNDERSTANDS WHAT THE TARGET IS, AT WHAT PART HE IS TO FIRE, AND WITH WHAT SIGHT SETTING.

Packs.

INSTRUCTIONS FOR ASSEMBLING THE INFANTRY EQUIPMENT, MODEL OF 1910.

1. THE CARTRIDGE BELT.—(*a*) To assemble the belt. Place the adjusting strap on the ground, eyeleted edge to the front; place the pocket sections on the ground in prolongation of the adjusting strap, pockets down, tops of pockets to the front; insert end of adjusting strap in outer loop of metal guide, from the upper side, carry it under the middle bar and up through the inner loop; engage the wire hook on the end of adjusting strap in the eyelets provided on the inner surface of the belt.

(b) To adjust the belt.

Adjust the belt to fit loosely about the waist — i. e., so that when buckled it may rest well down over the hip bones on the sides of the body and below the pit of the abdomen in front. Care should be taken that the adjustment be made equally from both ends of the adjusting strap, so that the center eyelet will be in the middle of the belt.

(c) To fill the belt.

Unsnap the flap of the pocket and the interior retaining strap; lay the retaining strap out flat in prolongation of the pocket, insert a clip of cartridges, points of bullets up, in front of the retaining strap; press down until the base of the clip rests on the bottom of the pocket; pass the retaining strap over the bullet points and fasten it to the outside of the pocket by means of the fastener provided; insert a second clip of cartridges, points of bullets down, in rear of the first clip; press down until the points of the bullets rest on the bottom of the pocket; close the flap of the pocket and fasten by means of the fastener provided.

The remaining nine pockets are filled in like manner.

2. TO ATTACH THE FIRST-AID POUCH.— Attach the pouch under the second pocket of the right section of the belt by inserting one hook of the double-hook attachment in the eyelet from the inside of the belt; pinch the base of the pocket, bringing eyelets close together, and insert the other hook in the same manner in the adjoining eyelet.

Place the first-aid packet in the pouch and secure the cover.

3. TO ATTACH THE CANTEEN COVER.— Attach the canteen cover to the belt under the rear pocket of the right section in the same manner as the first-aid pouch.

Place the canteen and cup (assembled) in the cover and secure the flaps.

4. TO ATTACH THE PACK CARRIER TO THE HAVERSACK.— Spread the haversack on the ground, inner side

down, outer flap to the front (Fig. 4); place the buttonholed edge of the pack carrier on the buttonholed edge of the haversack, lettered side of carrier up; buttonholes of carrier superimposed upon the corresponding ones of the haversack; lace the carrier to the haversack by passing the ends of the coupling strap down through the corresponding buttonholes of the carrier and haversack nearest the center of the carrier, bringing the ends up through the next buttonholes and continuing to the right and left, respectively, to the sides.

5. TO ATTACH THE CARTRIDGE BELT TO THE HAVERSACK.—Place the haversack and pack carrier (assembled) on the ground, inner side down (Fig. 5); place the cartridge belt, pockets down, tops to the front, along the junction of the haversack and carrier; insert hook on rear of belt suspender in the center eyelet of the adjusting strap, so that the end of the hook will be on the outside of the belt; insert hooks on ends of front belt suspenders in the eyelets between the second and third pockets from the outer ends of the belt, so that the end of the hooks will be on the outside of the belt.

6. TO ATTACH THE BAYONET SCABBARD TO THE HAVERSACK.—Attach the scabbard by passing its lower end through the loop provided on the side of the haversack body, then engage the double-hook attachment in the eyelets on the outer flap on the haversack, inserting the hooks from the inside.

Place the bayonet in the scabbard.

7. TO ATTACH THE INTRENCHING TOOL CARRIER TO THE HAVERSACK.—Fold the outer flap of the haversack over so that the meat-can pouch is uppermost; pass the intrenching tool carrier underneath the meat-can pouch and engage the double-hook attachment in the eyelets in the flap provided, inserting the hooks from the underside.

Place the intrenching tool in the carrier and secure.

Place the meat-can, knife, fork, and spoon in the meat-can pouch.

The equipment is now assembled and is never disassembled except to detach the pack carrier and its contents as hereinafter provided for.

TO ASSEMBLE THE FULL EQUIPMENT.

(With Rations.)

Place the assembled equipment on the ground, suspender side of haversack down, pockets of cartridge belt up, haversack spread out, inside flap and pack carrier extended their full length to the rear (Fig. 6).

Place three cartons of hard bread in the center of the haversack body, the lower one on the line of attachment of the inside flap; lay the remaining carton of hard bread, the condiment can and the bacon can on the top of these, the condiment can and the bacon can at the bottom, top of the bacon can to the front; the socks and toilet articles are rolled, towel on the outside, into a bundle of the same approximate dimensions as a carton of hard bread, and are placed in front of the two rows thus formed.

The inside flap of the haversack is folded over these articles, the end of the flap being turned in so that the flap, thus shortened, extends about 2 inches beyond the top of the upper row; the sides of the haversack are folded over the sides of the rows; the upper binding straps are passed through the loops on the outside of the inside flap, each strap through the loop opposite the point of its attachment to the haversack body, and fastened by means of the buckle on the opposite side, the strap being passed through the opening in the buckle next to its attachment, over the center bar, and back through the opening of the buckle away from its attachment; the strap is pulled tight to make the fastening secure; the outer flap of the haversack is folded over and fastened by means of the lower haversack binding strap and the buckle on the inside of the outer flap; the strap is pulled tight, drawing the outer flap snugly over the filled haversack.

The haversack is now packed and the carrier is ready for the reception of the pack (Fig. 7).

If one haversack ration and one emergency ration are carried in lieu of two haversack rations, the haversack is packed in the manner described above, except that two cartons of hard bread and the bacon can form the bottom layer, the bacon can on the bottom; the condiment can, the emergency ration, and the toilet articles form the top layer.

If one emergency ration is carried in addition to the two haversack rations, it is packed on top of the top layer.

TO MAKE THE PACK (Fig. 8).—Spread the shelter half on the ground and fold in the triangular ends, forming an approximate square from the half, the guy on the inside; fold the poncho once across its shortest dimension, then twice across its longest dimension, and lay it in the center of the shelter half; fold the blanket as described for the poncho and place it on the latter; place the shelter tent pins in the folds of the blanket, in the center and across the shortest dimension; fold the edges of the shelter half snugly over the blanket and poncho and, beginning on either of the short sides, roll tightly and compactly. This forms the pack.

TO ASSEMBLE THE PACK (Fig. 9).—Place the pack in the pack carrier and grasp the lower suspension rings, one in each hand; place the right knee against the bottom of the roll; pull the carrier down and force the pack up close against the bottom of the packed haversack; without removing the knee, pass the lower carrier binding strap over the pack and secure it by means of the opposite buckle; in a similar manner secure the lower haversack binding strap and then the upper carrier binding strap.

Engage the snap hook on the pack suspenders in the lower suspension rings.

The equipment is now assembled and packed as prescribed for the full equipment.

TO ASSEMBLE THE FULL EQUIPMENT.

(Without Rations.)

Place the assembled equipment on the ground as heretofore described; fold up the inside flap of the haversack so that its end will be on a line with the top of the haversack body; fold up the lower haversack strap in the same manner.

TO MAKE UP THE PACK.—Fold the poncho, blanket and shelter half, and make up the pack as heretofore prescribed, except that the condiment and bacon can (the former inside the latter) and the toilet articles and socks are rolled in the pack. In this case the pack is rolled, beginning on either of the long sides instead of the short sides, as heretofore described.

TO ASSEMBLE THE PACK.—Place the pack on the haversack and pack carrier, its upper end on a line with the upper edge of the haversack body; bind it to the haversack and carrier by means of the haversack and pack binding straps; fold down the outer flap on the haversack and secure it by means of the free end of the middle haversack binding strap and the buckle provided on the underside of the flap; engage the snap hooks of the pack suspenders in the lower suspension rings.

The equipment is now packed and assembled (Fig. 10).

TO ADJUST THE EQUIPMENT TO THE SOLDIER.—Put on the equipment, slipping the arms one at a time through the pack suspenders as through the sleeves of a coat; by means of the adjusting buckles on the belt suspenders, raise or lower the belt until it rests well down over the hip bones on the sides and below the pit of the abdomen in front; raise or lower it in rear until the adjusting strap lies smoothly across the small of the back; by means of the adjusting buckles on the pack suspenders, raise or lower the load on the back until the top of the haversack is on a level with the top of the

shoulders, the pack suspenders, from their point of attachment to the haversack to the line of tangency with the shoulder, being horizontal. *The latter is absolutely essential to the proper adjustment of the load.*

The position of the belt is the same whether filled or empty.

TO ASSEMBLE THE FULL EQUIPMENT LESS THE PACK.

(With Rations.)

(Fig. 11.)

Detach the carrier from the haversack; place the rest of the equipment on the ground as heretofore described; place the four cartons of hard bread, the bacon can, the condiment can, and the toilet articles in one row in the middle of the haversack body, the toilet articles at the top, the bacon can at the bottom, top to the front, the row extending from top to bottom of the haversack; fold the inside flap over the row thus formed; fold the sides of the haversack up and over; pass the three haversack binding straps through the loops on the inside flap and secure by means of the buckles on the opposite side of the haversack; pass the lower haversack binding strap through the small buttonhole in the lower edge of the haversack, fold the outer flap of the haversack over the whole and secure by means of the buckle on its underside and the lower haversack binding strap.

Pass the haversack suspension rings through the contiguous buttonholes in the lower edge of the haversack and engage the snap hooks on the ends of the pack suspenders.

If one haversack ration and one emergency ration are carried in lieu of two haversack rations, the haversack is packed in the manner described above, except that one emergency ration is substituted for two of the cartons of hard bread.

If one emergency ration is carried in addition to the two haversack rations, it is packed on top of the layer.

TO ASSEMBLE THE FULL EQUIPMENT LESS THE PACK.

(Without Rations.)

Detach the carrier from the haversack; place the rest of the equipment on the ground as heretofore described; fold up the inside flap of the haversack until its upper end is on a line with the top of the haversack body; fold the sides of the haversack over, pass the three haversack binding straps through the loops on the inside flap and secure by means of the buckles on the opposite side of the haversack; pass the lower haversack binding strap through the small buttonhole in the lower edge of the haversack; place the condiment and bacon can (the former inside the latter) and the toilet articles and socks in the bottom of the pouch thus formed; fold the outer flap of the haversack over the whole and secure by means of the buckle on its underside and the lower haversack binding strap.

Pass the haversack suspension rings through the contiguous buttonholes in the lower edge of the haversack and engage the snap hooks on the ends of the pack suspenders.

TO ADJUST THE EQUIPMENT TO THE SOLDIER.—Put on the equipment as prescribed for the full equipment. Adjust the cartridge belt as prescribed for the full equipment. Adjust the pack suspenders so that the top of the haversack is on a level with the top of the shoulders.

TO DISCARD THE PACK WITHOUT REMOVING THE EQUIPMENT FROM THE BODY.

Unsnap the pack suspenders from the suspension rings and snap them into the eyelets on top of the belt and in rear of the rear pockets of the right and left pocket sections; support the bottom of the pack with the left hand and with the right hand grasp the coupling strap at its middle and withdraw first one end, then the other; press down gently on the pack with both hands

and remove it. When the pack has been removed, lace the coupling strap into the buttonholes along the upper edge of the carrier. Adjust the pack suspenders.

For illustration of how packs are made up and carried, see Privates' Manual, Chapter 2.

CARE OF EQUIPMENT.

LEATHER.—1. Keep leather clean. Use material furnished by Ordnance Department, or castile soap and water.

2. Oil leather frequently to keep it pliable. Use Neatsfoot oil, Viscol or Harness soap.

3. Dry in the shade; never in the sun or in artificial heat. Always store in a cool, dry place without artificial heat. Shoe polishes are almost always injurious.

WOOLEN CLOTHES.—Wash in tepid or cold water with a non-alkaline soap; do not wring it out; dry in the shade.

MENDING.—Always keep equipment ready for use.

CLOTH EQUIPMENT.—DRY CLEANING.—Scrub with a stiff brush frequently.

WASHING.—Only under the direction of an officer.

Dissolve 1 piece of Q. M. soap (not yellow), in 9 cups of water. One cup will clean the equipment of one man. Apply with a brush and lather well. Rub soap directly on persistent spots. Wash off in cold water and dry in the shade.

INSTRUCTIONS ON MAKING PACKS.

FOUR METHODS:

Full equipment with rations.

Full equipment without rations.

Full equipment less pack, with rations.

Full equipment less pack, without rations.

Haversack,		Weight	9 $\frac{1}{4}$
Carrier	Cartridge belt, canteen,	Weight	11 $\frac{1}{2}$
Suspenders	Mess Rations	Weight	10 $\frac{1}{2}$
Mess pouch	Gun		9
	Clothing		7

40

ADJUSTING CARTRIDGE BELT.—1. Fits loosely around waist. 2. Resting on hips. 3. Hole between buckles. Insert ammunition: First clip in front, points up, fastened with retaining strap, Second clip points down. First aid pouch under 4th pocket, left. Canteen under rear pocket, right. Bayonet between 3rd and 4th pocket, left. (New bayonet scabbard fastens on haversack.)

DISTRIBUTION OF INTRENCHING TOOLS IN THE SQUADS.

No. 3 rear of each odd-numbered squad.....Bolo
 No. 3 rear of each even-numbered squad..Hand Axe.
 No. 1 rear of each squad.....Pick Mattock.
 Nos. 1, 2 and 3 front of each squad.....Shovels
 No. 2 rear of each squad.....Wire Cutter.

CHAPTER 3.

Physical Training.

Only the carefully trained and conditioned man can make victory possible. For this reason the first and most important concern of a nation at war is the physical training of its soldiers.

The setting-up exercises are the basis for all other activities and their disciplinary value is almost as great as their physical value.

PHYSICAL TRAINING.—Each period should include exercises for all parts of the body. Following the setting-up exercises the following should be given in the order named: marching, jumping, double timing, gymnastic contests, and concluding or restorative exercises.

Rifle exercises have for their purpose the development of "handiness" with the piece. They should be used moderately and with frequent rests, for they develop big muscles at the expense of agility—a muscle bound man cannot use his strength.

BAYONET TRAINING in addition to its military value calls into play every muscle of the body and makes for alertness, agility, quick perception, decision, aggressiveness and confidence.

Time Schedule.

A. M. (Begins $\frac{1}{2}$ hour
after breakfast):

1. Disciplinary exercises, 2 minutes.
2. Starting positions, 1 minute.
3. Setting up exercises, 20 minutes.
4. Marching and marching exercises, 5 to 8 minutes.

P. M. (End $\frac{1}{2}$ hour
before retreat):

1. Bayonet training, 30 minutes.
 2. Games and contests, 30 minutes.
- Alternating daily with:
1. Bombing practice, 20 minutes.
 2. Conditioning exercises, 15 minutes.

- | | |
|--|---|
| <p>A. M.— (<i>Continued</i>):</p> <p>5. Jumping, 5 to 8 minutes.</p> <p>6. Double timing, 5 minutes.</p> | <p>P. M.— (<i>Continued</i>):</p> <p>Double timing.</p> <p>Vaulting and overcoming obstacles.</p> <p>3. Rifle practice, 10 minutes.</p> |
|--|---|

Instructions must be:

1. An inspiration to the men.
2. Well prepared themselves.
3. Stripped for action.
4. An example to the men.
5. Must make drill attractive.
6. Never have men overdo. Temper the exercises to the endurance of the weakest man.
7. Accompany every exercise with the proper breathing.
8. See that the men are clothed according to the season.
9. Have the drills short and snappy.
10. Have frequent rests at the beginning — less frequent as work progresses.

The platoon is the best unit for physical drills.

FORMATIONS.—When exercising in small squads, the men “fall in” in a single rank and, after having “counted off” by fours, threes or twos, as the instructor may direct, distance is taken at the command: Take distance, March, Squad Halt. At “March” No. 1 moves forward, being followed by the other numbers at intervals of four paces. Halt is commanded when all have taken their distances.

At the discretion of the instructor the distance may be any number of paces, the men being first cautioned to that effect.

When distance is taken from the double rank, No. 1 of the rear rank follows No. 4 of the front rank, and he is in turn followed by the other numbers of the rear rank.

If the instructor desires the files to cover, he commands: In file *Cover*. Nos. 1 stand fast, the others moving to the right with the side step, until the Nos. 1 are covered.

To return to the original formation, the instructor commands: *Assemble March*. No. 1 of the front rank stands fast and the other members move forward to their original places.

Second Formation. To the right and left. Take interval, *March*.

Front Rank:

No. 1, 6 steps right step.
No. 2, 3 steps right step.
No. 3, Stands fast.
No. 4, 3 steps left step.

Rear Rank:

No. 1, 3 steps right step.
No. 2, Stands fast.
No. 3, 3 steps left step.
No. 4, 6 steps left step.

Commands.

KINDS OF COMMANDS, AND HOW GIVEN.—There are two kinds, *preparatory* and *executive*.

The *preparatory command* describes and specifies what is desired and the *executive command* calls what has been described into action.

The tone of the command should always be animated, distinct, and of a loudness proportioned to the number of men for whom it is intended.

Instructors should cultivate a proper command, as its value as a tributary to the success of any military drill cannot be overestimated.

After an exercise has been described, its various movements or parts should be performed at *executive words*, which indicate not only the movement that is desired but the manner of the execution. Thus: 1. Trunk forward, 2. Bend, 3. Recover (or Raise), here the word *bend* is drawn to indicate moderately slow execution; the recovery being a little faster, the word *recover* should be spoken to indicate it.

The word Recover should always be used to bring the men back to the original position.

If it is desired to continue an exercise, the command Exercise should be used and the cadence or rhythm should be indicated by words or numerals. If numerals are used, they should equal the number of movements composing the exercise. Thus an exercise of two movements will be repeated at *one, two*; one of four movements will require four counts, etc.

The numeral or word preceding the command Halt should always be given with a rising inflection in order to prepare the men for the command Halt.

Thus: 1. Thrust arms forward, 2. Exercise one, two, one, two, one, Halt.

If any movement of any exercise is to be performed with more energy than the others, the word or numeral corresponding to that movement should be emphasized.

FIRST LESSON.—A. Disciplinary Exercises. 1. Attention; 2. At Ease; 3. Rest; 4. Facings.

B. Starting Positions. (m.p.t., pp. 25 to 29.)

C. Setting-up Exercises (every exercise has two motions):

1. Arms forward, 2. Raise. Swing arms downward and forward.
2. Hands on hips, 2. Place. Rise on toes. (33.)
3. Hands on hips, 2. Place. Bend head backward; same, forward. (38.)
4. Hands on hips, 2. Place. Turn trunk right; same, left. (40.)
5. Arms to thrust, 2. Raise. Half bend knees slowly. (35.)
6. Hands on hips, 2. Place. Bend trunk forward. (36.)

Note.—Jumping and double-timing exercises and contests should not be included in the first week's work.

Bracketed numbers refer to pages in "Manual of Physical Training," where similar exercises are illustrated and described

FIRST LESSON — (*Continued*):

C. Setting-up Exercises — (*Continued*):

7. Arms to thrust, 2. Raise. Raise and lower shoulders. (32.)
8. Hands on hips, 2. Place. Bend trunk sideward, right; same, left. (37.)
9. Arms forward, 2. Raise. Stretch arms sideward. (43.)
10. Hands on hips, 2. Place. Bend trunk backward. (34.)
11. Hands on hips, 2. Place. Raise knees forward alternately. (41.)
12. Breathing Exercise: Inhale, raising arms sideward; exhale, lowering arms.

D. Marching Exercises:

1. Marching in column in quick time and halting.
2. Same, marking time, marching forward and halting.
3. Same, marching on toes.

SECOND LESSON.— A. Disciplinary Exercises. Same as in first lesson.

B. Starting positions.

C. Setting-up Exercises (every exercise has two motions):

1. Arms forward, 2. Raise. Swing arms sideward.
2. Hands on hips, 2. Place. Rise on toes. (33.)
3. Hands on hips, 2. Place. Turn head right; same, left. (41.)
4. Hands on shoulders, 2. Place. Turn trunk sideward, right; same, left. (40.)
5. Hands on hips, 2. Place. Full bend knees, slowly. (39.)
6. Hands on hips, 2. Place. Bend trunk forward. (36.)

SECOND LESSON — (*Continued*):C. Setting-up Exercises — (*Continued*):

7. Arms to thrust, 2. Raise. Move shoulders forward and backward. (35.)
8. Arms sideward, 2. Raise. Bend trunk sideward, right; same, left. (31.)
9. From Attention. Stretch arms forward and sideward.
10. Hands on hips, 2. Place. Bend trunk backward. (34.)
11. Hands on hips, 2. Place. Extend right and left leg forward. (44.)
12. Breathing Exercise: Inhale, raising arms sideward and upward; exhale, lowering arms sideward.

D. Marching Exercises:

1. Marching in column in quick time, mark time, marching in quick time and halting. (88.)
2. Marching on toes. (89.)
3. Marching on toes and rocking.

E. Jumping Exercises:

1. Rise on toes and arms forward, 2. Raise. Swing arms downward and bend knees; swing arms forward and extend knees, and recover Attention.
2. Jumping in place. (193.)

F. Double Timing:

1. Double timing, change to quick time and halting. (92.)

G. Concluding Exercises:

1. Breathing exercise, raising and lowering arms sideward.

THIRD LESSON.—A disciplinary Exercises, as in first lesson.

B. Starting Positions.

THIRD LESSON — (*Continued*):

C. Setting-up Exercises:

1. Arms forward, 2. Raise. Swing arms downward and sideward. (4 motions.)
2. Hands on hips, 2. Place. Rise on right and left toes, alternatingly. (4 motions.) (46.)
3. Hands on hips, 2. Place. Bend head forward and backward. (4 motions.) (38.)
4. Arms sideward, 2. Raise. Turn trunk right and left. (4 motions.) (53.)
5. Hands on hips, 2. Place. Rise on toes and full bend knees slowly. (4 motions.) (39.)
6. Fingers in rear of head, 2. Place. Bend trunk forward. (2 motions.) (42.)
7. Arms to thrust, 2. Raise. Move shoulders forward, upward, backward, and recover. (4 motions.)
8. Hands on shoulders, 2. Place. Bend trunk sideward, right, and left. (4 motions.) (37.)
9. From Attention. Stretch arms sideward, upward, sideward, and recover. (4 motions.)
10. Hands on shoulders, 2. Place. Bend trunk backward. (2 motions.) (34.)
11. Hands on hips, 2. Place. Extend right and left leg backward. (2 motions.)
12. Breathing Exercise: Inhale, raising arms forward, upward; and exhale, lowering arms sideward, down.

D. Marching Exercises:

1. Marching in quick time, raising knees. (89.)
2. Thrusting arms sideward.

THIRD LESSON — (*Continued*):

E. Jumping Exercises:

1. Standing broad jump.
2. Three successive broad jumps.

F. Double Timing:

1. Double timing. (92.)
2. Double timing, marking time in the double and forward.
3. Double timing and halting from the double.

G. Gymnastic Contests. Two of these games should be included in each lesson. See pp. 39-40.

H. Concluding Exercises:

1. Breathing exercise, as in 12.

FOURTH LESSON.—A. Disciplinary Exercises, as in first lesson.

B. Starting Positions.

C. Setting-up Exercises:

1. Hands on shoulders, 2. Place. Extend arms forward; swing sideward, forward, and recover. (4 motions.)
2. Hands on hips, 2. Place. Rise on toes quickly. (2 motions.) (33.)
3. Hands on hips, 2. Place. Turn head right and left. (4 motions.) (41.)
4. Arms upward, 2. Raise. Turn trunk right and left. (4 motions.)
5. Hands on hips, 2. Place. Half bend knees, quickly. (2 motions.) (35.)
6. Arms sideward, 2. Raise. Bend trunk forward. (2 motions.)
7. Hands on shoulders, 2. Place. Move elbows forward, and stretch backward. (2 motions.) (45.)
8. Arms upward, 2. Raise. Bend trunk sideward, right and left. (4 motions.)

FOURTH LESSON — (*Continued*):C. Setting-up Exercises — (*Continued*):

9. From Attention. Stretch arms forward, sideward, upward, sideward, forward, and recover. (6 motions.)
10. Arms sideward, 2. Raise. Bend trunk backward. (2 motions.)
11. Hands on hips, 2. Place. Extend legs sideward. (2 motions.)
12. Breathing Exercise: 1. Inhale, raising arms forward, upward; exhale, lowering arms sideward.

D. Marching Exercises:

1. Marching in quick time, raising knees, and rising on toes of other foot.
2. Raising heels.
3. Thrusting arms sideward.

E. Jumping Exercises:

1. Three successive standing broad jumps.
2. Jumping in place, raising knees.

F. Double Timing:

1. Double timing.
2. Raising heels.
3. Double timing, sideward, crossing legs.

G. Gymnastic Contests.

H. Concluding Exercises:

1. Swing arms forward, upward, relaxed.
2. Breathing exercise, as in 12.

FIFTH LESSON.— A. Disciplinary Exercises.

B. Starting Positions.

C. Setting-up Exercises:

1. Arms to thrust. Thrust arms upward; swing downward; forward; upward, and recover. (4 motions.) (55.)
2. Hands in rear of head. Rise on toes and rock. (2 motions.) (39.)

FIFTH LESSON — (*Continued*):C. Setting up Exercises — (*Continued*):

3. Hands on hips. Bend head forward and backward. (4 motions.)
4. Hands on shoulders. Turn trunk right and left, stretching arms sideward. (4 motions.) (52.)
5. Full bend knees. Hands on ground between knees, squatting position, extend right and left leg backward, alternately. (4 motions.) (65.)
6. Hands on shoulders. Bend trunk forward and stretch arms sideward. (2 motions.) (51.)
7. From Attention. "Curl" shoulders forward and stretch backward. (2 motions.) (38.)
8. Hands on shoulders. Bend trunk sideward, right and left, extending arms sideward. (4 motions.) (65.)
9. From Attention. Flex forearms vertically; extend upward; flex and recover. (4 motions.) (54.)
10. Hands on shoulders. Bend trunk backward, stretching arms sideward. (2 motions.) (56.)
11. From Attention. Raise arms forward and extend leg forward; stretch arms sideward, extending leg backward; move arms and leg to first position and recover Attention. (4 motions.) (53.)
12. Breathing Exercise: Raise arms sideward; upward; and lower laterally quickly. (4 motions.)

D. Marching Exercises:

1. March in quick time and swing extended leg forward, ankle high.

FIFTH LESSON — (*Continued*):D. Marching Exercises — (*Continued*):

2. Raising knee and hopping on other foot.
3. From arms forward. Swing arms upward.

E. Jumping Exercises:

1. Standing hop, step and jump.
2. Preliminary running broad jumps.
3. Broad jump from a walking start of four paces. (197.)

F. Double timing.

1. Double timing.
2. Double timing sideward, crossing leg in front.
3. Double timing, raising knees.

G. Gymnastic Contests.

H. Concluding Exercises:

1. Bend trunk forward and backward, relaxed.
2. Breathing exercise, as in 12.

For further work for recruits and work to be given trained soldiers, see Special Regulation No. 23, "Field Physical Training of the Soldier."

To prevent grumbling, keep men at work. Idle men are the ones who growl. The French consider periods spent in the trenches as periods of rest; instead of letting the men go on pass when relieved, they restore discipline by close order drill.

The physical benefit is less than half of physical exercises. There should be mental exertion in every exercise. But the most important part is the disciplinary benefit. The exercises must teach men to jump at commands, and by this means must make the organization a homogeneous mass.

The principal thing in the position of attention is "chest lifted and arched." There should be a stretch upward at the waist. The position should give the impression of a man as proud of himself as he can be. This is a bluff which works, not only by making a good

first impression on others, but by causing the man himself to live up to it.

Insist on precision. Especially when men are losing interest, don't let the work sag, but make it interesting by requiring concentration. At the beginning of each exercise, wake the men up by calling them to attention until they do it well, giving the facings, etc.

COMMANDS.—There is a tone at which each voice carries best. Each man must find it for himself. To make commands understood, enunciate carefully with lips and teeth. Sound especially first and last letters of words. Officer's posture adds to effect of command. His personality is impressed on his men largely by his voice. Preparatory command should be vibrant and cheerful—not a harsh tone that grates on the men and antagonizes them. The command of execution must be short and sharp; drill can be made or marred by it.

MARCHING.—A cadence faster than 120 a minute adds snap to marching, but snap can not be gained in proportion as the cadence is run up. Snap is attained chiefly by the proper gait. Soldiers should march, not with knees always slightly bent, but should straighten them smartly at the end of each step. This adds drive to the step, and gives the men confidence and a mob spirit of courage. After long drill at attention, this spirit can be carried into extended order work.

Marching exercises are useful and can be greatly varied. The command "Exercise" should always be given as the left foot strikes the ground. "Exercise" is a command of execution, and the first movement should be executed at once when it is given. The count "One" is given when this first position is reached. The command to stop all marching exercises is "Quick time — March."

In all exercises the instructor should cultivate the ability to pick mistakes. He can develop this until he can watch much larger groups than at first.

Voice Culture.

Mastery of the voice is a necessity for every officer; for without it the giving of commands will soon make his throat look and feel like a piece of raw Hamburg steak. Quality of voice is more effective than quantity. Brute force may produce a roar that has tremendous volume at a short distance; but the sound will not carry unless it is so placed that it gets the benefit of the resonance spaces in the head. If the tone is produced properly, so that it has the singing quality necessary in all right commands, quantity of tone will come of itself.

This singing quality has nothing to do with music; it may be attained by a man who can hardly distinguish a bar of music from a bar of soap. It depends upon three principles, which are very simple in themselves but can not be applied without careful practise. The first covers proper use of the breath. Air must be drawn into the lungs by expanding the diaphragm and abdomen, a process best seen in the natural breathing of a man who is lying on his back with all muscles relaxed. Filling the upper part of the lungs by raising the chest puts the work on the comparatively small muscles between the ribs; but filling the base of the lungs by pulling downward brings into play the diaphragm, the largest muscle in the body. The sensation which accompanies proper deep control of the breath is as if the tone were not pushed out of the mouth, but drawn in and upwards. It is partly described by the phrases of singing teachers, "drawn tone" and "singing on the breath."

The diaphragm must not only relieve the muscles between the ribs, but, still more important, the small muscles of the throat. The second great principle of voice production is that the throat must be perfectly relaxed. Any tension there interferes with the free vibration which is essential for strong and resonant tone. This relaxation is

most easily gained by drawing the chin in slightly, loosening the muscles under it. The base of the tongue can be relaxed by rolling the letter "R," even to the extent of making two syllables of such words as "gr-rand." Talking with the teeth closed loosely will also help to ease incorrect tension about the throat. If the throat is properly relaxed, there will be no sensation in it during the production of the voice. Any sensation between the diaphragm and the resonance chambers of the head is a sign of wrong and harmful tension.

The use of these resonance chambers is required by the third principle — that the tone must be reinforced by resonance in all the hollow spaces of the head. These are found in the nose, above the palate and even above the eyes. They have the same effect as the sounding board of a musical instrument, in giving quality to the tone. The best way to put this principle into practice is to learn the sensation of the clear and ringing tone which is produced by proper placing of the voice. Exercises containing the letters "M" and "N" will give this effect. This does not mean that the sound should be nasal; it should be made in the nose, but not through it. Another way to increase resonance is to think of crying the words rather than talking them. A slightly whining intonation or a sound like that of a laugh has more ring to it than an ordinary flat talking tone.

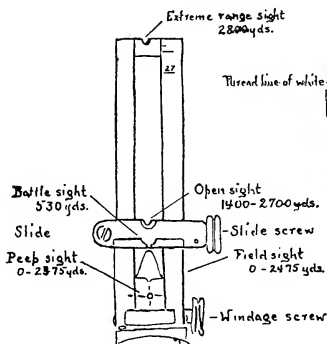
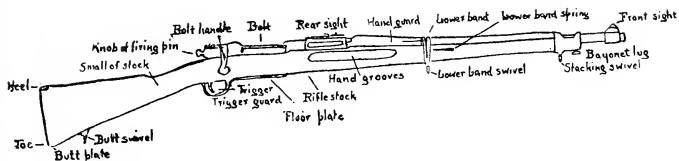
These principles should not be neglected because they are simple. They can not be mastered without work, and unless they are mastered the voice will not be heard at a distance and will not last under the work of giving commands. Further suggestions on the manner of giving commands will be found under Physical Training.

CHAPTER 4.

Use of Modern Arms.

Plate #3

. U.S. Magazine Rifle Model 1903



Rear-Sight Leaf

Proper Positions for

Open

and

Peep Sights.



Normal Sight: Look through the rear-sight notch at the bull's-eye or mark, and bring the top of the front sight on a line with the top of and in the center of the rear-sight notch and aligned upon the point of aim.

Small Arms Firing.

Under this heading we have many phases of the training and exercises given to our armed forces. It has been found best to use simple every day methods to get the best results.

There are two principal factors — the rifle and the pistol. The former only will be taken up now. The scheme is to make the soldier a good shot singly and collectively, in time of peace and in time of war.

The course of instruction at this camp was arranged as follows:

- (a) Nomenclature and care of the rifle.
- (b) Sighting drills.
- (c) Position and aiming drills.
- (d) Deflection and aiming drills.
- (e) Range practice.
- (f) Estimating distance drill.
- (g) Combat firing.

(a) Every man should be taught the names of the principal parts (see cut) of the rifle and how to clean and keep it clean.

(b) If time permits, the sighting bar described on page 26, s.a.f.m. should be used. To illustrate the normal and peep sight make a drawing on a blackboard of page 30, s.a.f.m.

Using a sand bag or some convenient rest for the rifle. The instructor sights it on some object showing the normal and peep sight. Using the above rests have a marker hold a disk against a large piece of paper towards which the rifle is pointed. There is a pin hole in the center of the bull's eye on the disk. The range should be about 50 feet, and the bull's eye about 1 inch in diameter. The marker moves it about until the man sighting tells him to "hold," at which time he marks the center with the point of a pencil. This is done three times, the three points are then connected. The triangle thus formed is then used by the

instructor to show the man whether he took too much or too little front sight or whether he leaned to one side or the other while aiming.

Use for this exercise both the normal and peep sight.

To show the effect of canting the piece use a sight setting of 1,000 yards, take out the bolt, aim the rifle while lying on a sand bag at a 1-inch bull's eye 50 feet away. Then look through the bore of the rifle and have the place where the target would be approximately hit by a bullet marked. Cant the piece to the right and aim at the same bull's eye. Then look through the bore of the rifle and mark the place where the bullet would approximately strike the target. The last mark would be lower and to the right of the first mark. It should be readily seen that in canting the piece to the right your sight is to the right of its original position—that is right windage. Also by canting it to the right your elevation is lowered, that is lessened. Canting the piece to the left would make the bullet strike low and to the left.

(c) Preliminary command "Position and aiming drill," command of execution "Squad (platoon, or company) Ready." At the command "Ready" each man faces half right and carries the right foot about 1 foot to the right, in such a position that will insure the greatest firmness and steadiness, raises the piece and drops it into the left hand at the balance, left thumb along the stock, muzzle at the height of the breast. If kneeling or sitting the position of the piece is similar—if kneeling the left forearm rests on the left thigh—if sitting the elbows are supported by the knees. If lying down the left hand steadies and supports the piece at the balance, the toe of the butt resting on the ground, the muzzle off the ground. From the position of ready the four exercises—position, aiming, trigger squeeze, and rapid fire—are given. These exercises given on pages 38-42, s.a.f.m. should be carefully

studied. Do not leave it to the sergeant, etc., to do — give your company your own instruction when practicable, and in time of battle they will know you and you will know them, and there will grow up between you that mutual understanding which is necessary for the real success of any undertaking. Do not forget to give these exercises in all positions of firing, namely, standing, sitting, kneeling, and prone.

(d) A change of one point of windage at the 100 yard range will change the point struck by the bullet of the next shot 4 inches. If right windage is taken the bullet will strike to the right, if left windage is taken it will strike to the left:

Range	windage	direction	number of inches change
100	1 point	right or left	4
200	1 point	right or left	8
300	1 point	right or left	12
500	1 point	right or left	20
600	1 point	right or left	24

Remember to take windage in the direction you want the bullet to strike.

A change of 25 yards in your sight setting raises or lowers the point struck by the bullet of the next shot at the 100 yards range 1 inch:

Range.	Change in sight.	Number inches change on target.
100	25 yards	1
200	25 yards	2
300	25 yards	3
500	25 yards	5
600	25 yards	6
300	75 yards	9
500	150 yards	30

(e) Range practice.

Target details must be thoroughly familiar with paragraphs 106-110, s.a.f.m. Scorers must be familiar

with the method of recording scores. The following schedule is the one that was followed at this camp:

SLOW FIRE.

Range	Time	Shots	Target	Position	Sights	Ammunition
100....	No limit..	15	A	Prone.....	Leaf.....	Guard
100....	No limit..	15	A	Kneeling..	Leaf.....	Guard
100....	No limit..	15	A	Standing..	Leaf.....	Guard
200....	No limit..	15	A	Prone.....	10 leaf, 5 battles.	Service
200....	No limit..	15	A	Kneeling..	10 leaf, 5 battles.	Service
300....	No limit..	15	A	Prone.....	10 leaf, 5 battles.	Service
300....	No limit..	15	A	Sitting....	10 leaf, 5 battles.	Service

RAPID FIRE.

Range	Time	Shots	Target	Position	Sights	Ammunition
100....	1 min....	10	D	Prone.....	Leaf.	Service
100....	1 min....	10	H	Prone.....	Leaf.	Service
200....	1 min....	10	D	Kneeling from standing	Leaf.	Service
200....	1 min....	10	H	Prone from standing..	Leaf.	Service
300....	1'-10"....	10	D	Prone from standing..	Leaf.	Service
300....	1'-10"....	10	H	Prone from standing..	Leaf.	Service

At each range with the rapid fire 5 additional shots should be fired with the battle sight and with half the allotted time.

(f) A course should be laid off in an open field. The base should be marked. At least 5 natural objects whose distances are to be estimated should be placed so that they are clearly visible from the base. The objects should be men standing, kneeling or prone, and should be placed from 550 to 1,200 yards from the base. Each company should be conducted to the base and extended along it, backs towards the objects, in single rank. Each man should have a pencil and paper. The objects whose distances are to be estimated are pointed out by the company commander and the men told to estimate and record their estimates. At the conclusion of the exercise, the company commander

should read off the correct distances, and have each man figure his per cent of error. It is important that the men know the correct distances while the objects are still in view.

For record, paragraph 85, s.a.f.m. should be followed.

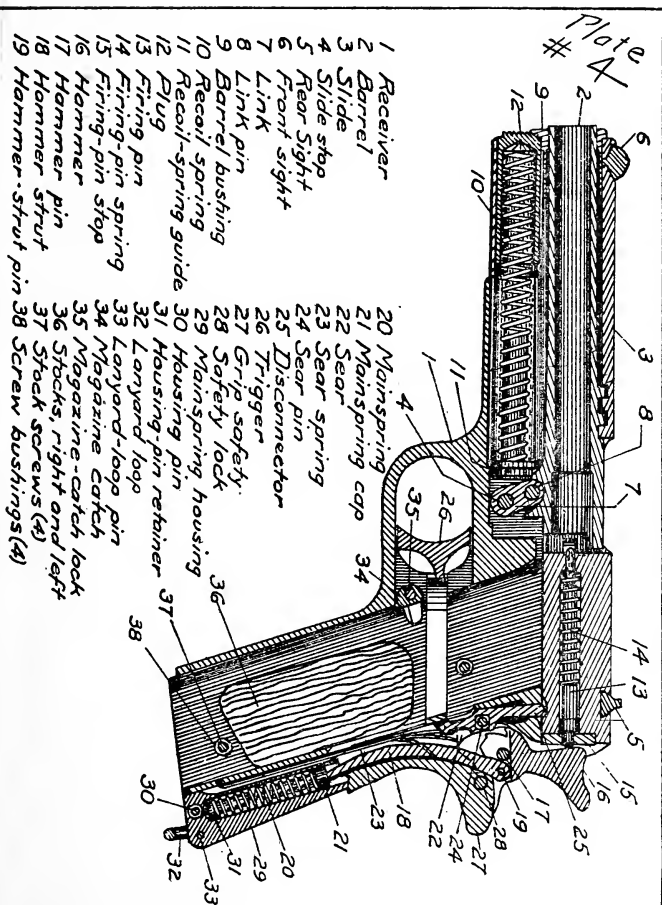
Remember that there are four principal ways to estimate distances by: 1, it cannot be more than a certain distance, and it cannot be less than a certain distance — take the mean; 2, divide the distance into a certain number of familiar lengths; select a halfway point, estimate this and multiply by 2; 3, estimate the distance along a parallel line, as a road having well defined objects; 4, take the mean of several estimates.

(g) In combat the platoon is the fire unit. The fire of the company, battalion or regiment is nothing more than the combined fire of all the fire units. The enemy can be imaginary, outlined or represented. The exercise must be conducted under an assumed tactical situation. The commander must lead his men according to the assumptions made by the umpire. Signals are used to indicate the enemy's actions, strength, etc. The situation should be simple, and after the exercise a critique should be held on the ground. Combat practice with ball ammunition against disappearing targets, and at estimated ranges, gets excellent results. The officer conducting the exercise will prohibit the advance if it would be impossible were the enemy real.

Have every man play the game.

A point to be remembered is that for battle sight the sight slide must be as far to the rear as it will go. If it is part way up the leaf, the drift correction cut in the slot upon which it moves will throw it to the left, and left windage will be taken.

Point blank range is 530 yards. Battle sight is set for this distance because this is the extreme range at which a bullet would strike a man kneeling between the rifle and the target.



Pistol.

NOMENCLATURE AND CARE.—The soldier is first taught the nomenclature of the parts of the pistol. Ordinance Pamphlet No. 1866 gives this information. (See cut of pistol.)

MANUAL FOR THE PISTOL.

1. The pistol being in the holster: 1. Raise, 2. Pistol.

At the command Raise, unbutton the flap of the holster with the right hand and grasp the stock, back of hand outward.

At the command Pistol, draw the pistol from the holster, reverse it, muzzle up, the hand holding the stock with the thumb and last three fingers; forefinger outside of the guard; barrel to the rear, and inclined to the front at an angle of about thirty degrees; hand as high as the neck and six inches in front of the point of the right shoulder. This is the position of Raise Pistol, and it may be similarly taken from any position.

2. To withdraw magazine, pistol in any position: 1. Withdraw. 2. Magazine.

At the command Magazine, place pistol, barrel down, in left hand and clasp barrel in full grip of left hand, thumb clasped over barrel in front of trigger guard, butt of pistol up, barrel pointing to the left front and slightly downward. With tip of right forefinger press stud releasing magazine and then place tip of same finger under projection at front of magazine base. Raise magazine about an inch then close thumb and second finger on sides of magazine, giving a secure grasp with which it can be withdrawn from socket, placed inside belt (in pocket of shirt or otherwise disposed of without throwing it away). Right hand then grasps stock, back of hand to the left.

3. To open chamber, the pistol in any position: 1. Open. 2. Chamber.

Carry the pistol to the left hand (if not already there) barrel to the left, front end of slide grasped between the thumb and forefinger of left hand; right hand grasping stock, back of hand up; right thumb under slide stop. Hold left hand steady and push forward with right hand till slide reaches end of stroke; engage slide stop, and come to Raise Pistol. Should the pistol be cocked and locked, it will be unlocked so that the slide can move.

4. To close chamber, being at Raise Pistol, chamber open: 1. Close. 2. Chamber.

At the command Chamber, release slide top with right thumb and let hammer down gently. To let hammer down, pull downward with point of right thumb till hammer presses against grip safety and forces it home; then while continuing this pressure on hammer, pull trigger; and while continuing pull on trigger, let the hammer down. While letting hammer down, grasp stock firmly between the palm and last three fingers to prevent pistol rotating in hand.

5. To insert magazine, pistol being in any position, no magazine in socket: 1. Insert. 2. Magazine.

Lower pistol into left hand as in Withdrawn Magazine, grasp magazine with tip of right forefinger on projection at base of magazine, withdraw from pocket and insert in pistol. To make sure that magazine is home, strike base of magazine with palm of right hand. Bring the pistol to the position of Raise Pistol.

6. To return pistol, being at Raise Pistol: 1. Return. 2. Pistol.

Lower the pistol and raise the flap of the holster with the right thumb; insert the pistol in the holster and push it down; button the flap with the right hand. If the pistol be loaded and cocked the command. 1. Lock, 2. Pistol must precede the command "Return."

7. To load, having loaded magazine in pistol, pistol in any position, chamber empty: 1. Load. 2. Pistol.

Place pistol in left hand, barrel down, butt of pistol up, barrel pointing to left front and downward, slide grasped between thumb and forefinger. Push forward with right hand until the slide is fully open, then release slide allowing it to move forward and load cartridge into chamber. Come to Raise Pistol. If the last shot in the magazine has been fired, to reload; same command, but execute Withdrawn Magazine, Insert Magazine, Close Chamber. As soon as the pistol is loaded, it will be immediately locked by the commands, 1. Lock. 2. Pistol. Should the command for locking pistol be inadvertently omitted it will be locked without command.

8. To unload pistol, being in any position, loaded:

Execute by the commands, Withdraw Magazine, Open Chamber, Close Chamber, Insert Magazine.

9. To inspect pistol, it being in the holster: 1. Inspection. 2. Pistol.

Execute, Raise Pistol.

To inspect the pistol more minutely, add 3. Withdraw. 4. Magazine. 5. Open. 6. Chamber.

To avoid accidents, individual men out of ranks, in barracks or camp will first Withdraw Magazine then Open Chamber whenever the pistol is removed from the holster for cleaning, for examination, or for any other purpose. Accidental discharges will not occur if the above rule is always observed, and failure to observe it must be considered a military offense, whether or not accident results.

10. Whenever men fall in ranks with the automatic pistol the officer or non-commissioned officer in charge will command:

1. Raise, 2. Pistol;

1. Withdraw, 2. Magazine;

1. Open, 2. Chamber;

1. Close, 2. Chamber.

1. Insert, 2. Magazine.

1. Return, 2. Pistol.

When falling in the above commands are given after chamber of rifles have been opened and closed, and the order resumed — the rifle being held against the left wrist. The commander of any company or detachment thereof is responsible for giving the necessary commands to put the pistols in a safe condition.

11. The pistol with cartridge in chamber is habitually carried cocked and locked, whether in the hand or in the holster. The hammer will not be lowered while a cartridge is in the chamber.

12. In campaign, the pistol should habitually be carried with a magazine in the socket, loaded with seven ball cartridges, chamber empty, hammer down. The extra magazines should also be loaded with seven ball cartridges each.

When action seems imminent, the pistol should be loaded by command. It may then be returned by command to the holster till the time for its use arrives.

13. Recruits are first taught the motions of loading and firing without using cartridges. However, the automatic action and the effect of ball cartridges in operating the slide cannot be taught without firing ball cartridges. Practice without cartridges is very necessary to acquire facility in the exact movements of the manual and in aiming, holding and trigger squeeze.

To execute the movements without cartridges, first Withdraw Magazine, Open Chamber, and Examine both Pistols and magazines to assure that none contain ball cartridges.

14. All the movements in loading pistol should be practiced without looking at it. In order to do this successfully it is necessary to know exactly where the magazines are carried so the hand may find them without fumbling. Also, since the projection at the front of the magazine base is on the same side as the bullets,

and the magazine must be inserted in the socket with these to the front, the magazine should be carried in the pocket with the projection to the left and should be withdrawn from the pocket with the same grasp as is prescribed for Withdrawn Magazine.

15. This manual must be practiced with all the precision and exactness required for the manual for the rifle. Accidents will be reduced to a minimum and familiarity with the pistol gained.

POSITION

Stand firmly on both feet, body perfectly balanced and erect and turned at such an angle as is most comfortable when the arm is extended toward the target; the feet far enough apart (about 8 to 10 inches) as to insure steadiness; weight of body borne equally upon both feet; right arm fully extended but not locked; left arm hanging naturally.

THE GRIP.—Grasp the stock as high as possible with the thumb and last three fingers, the forefinger alongside the trigger guard, the thumb extended along the stock. The barrel hand and fore-arm should be as nearly in one line as possible when the weapon is pointed toward the target. The grasp should not be so tight as to cause tremors but should be firm enough to avoid losing grip. The lower the stock is grasped the greater will be the movement or jump of the muzzle caused by recoil. If the hand be placed so that the grasp is on one side of the stock, the recoil will cause a rotary movement of the weapon toward the opposite side.

The releasing of the sear causes a slight movement of the muzzle, generally to the left. The position and pressure of the thumb along the stock overcomes much of this movement.

To do uniform shooting the weapon must be held with exactly the same grip for each shot, not only must the hand grasp the stock at the same point for each shot, but the tension of the grip must be uniform.

THE TRIGGER SQUEEZE.—The trigger must be squeezed in the same manner as in rifle firing. The pressure of the forefinger on the trigger should be steadily increased and should be straight back, not sideways. The pressure should continue to that point beyond which the slightest movement will release the sear. Then when the aim is true, the additional pressure is applied and the pistol fired. When the pistol is fired the greatest effort should be taken to hold the pistol to the mark as nearly as possible. This will be of great benefit in automatic firing.

POSITION AND AIMING DRILLS.—The Squad is formed with an interval of one pace between files. Black pasters are used as aiming points. The pasters are ten paces distant from the squad. The instructor command, 1. Raise, 2. Pistol and cautions "Position and Aiming Drill." The men take the position prescribed in paragraph 3. At the command, 1. Squad, 2. Fire, slowly extend the arm till it is nearly horizontal, the pistol directed at a point about six inches below the bull's-eye. At the same time put the forefinger inside the trigger guard and gradually feel the trigger. Inhale enough air to comfortably fill the lungs and gradually raise the piece until the line of sight is directed at the point of aim, *i. e.*, just below the bull's-eye at six o'clock. While the sights are directed upon the mark, gradually increase the pressure on the trigger until it reaches that point where the slightest additional pressure will release the sear. Then, when the aim is true, the additional pressure necessary to fire the piece is given so smoothly as not to derange the alignment of the sights. The weapon will be held on the mark for an instant after the hammer falls and the soldier will observe what effect, if any, the squeezing of the trigger has had on his aim.

When the soldier has become proficient in taking the proper position the exercise is conducted "At Will."

QUICK FIRE.—Being at the Raise Pistol, chamber and magazine empty, 1. Quick Fire Exercise, 2. One. Lower the forearm until it is nearly horizontal, pistol pointing at the target, 3. Two. Thrust the pistol forward to the position of aim, snapping the pistol just before the arm reaches its full extension. Then look through sights to verify the pointing. 4. Three. Return to Raise Pistol and cock the pistol.

In this exercise the soldier must keep his eyes fixed upon the mark. He should constantly practice pointing the pistol until he acquires the ability to direct it on the mark in the briefest interval of time and practically without the aid of the sights. In other words, the pistol in this exercise is accurately pointed instead of accurately aimed. In night firing pointing the pistol is the only method that can be used. After careful practice in this exercise it is surprising what good results can be obtained at night.

This exercise should then be practiced from the position of the pistol in the holster instead of Raise Pistol.

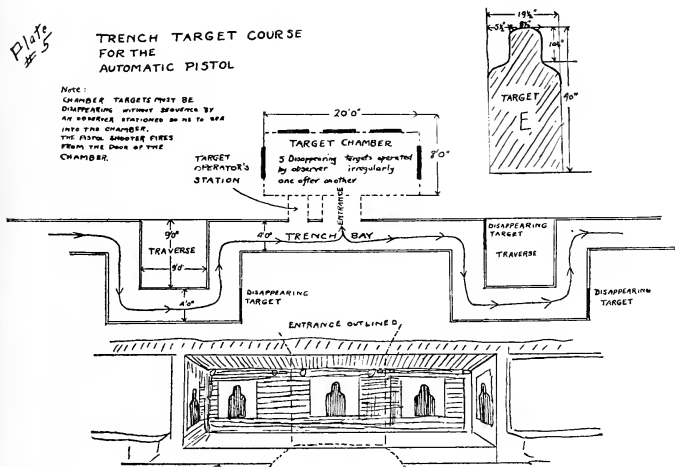
CLASSES OF FIRE: 1. SLOW FIRE.—As described above. Target L or A or improvised target.

2. QUICK FIRE.—Being at Raise Pistol, pistols locked, at the command "Commence Firing" fire and return to Raise Pistol after each shot following the principles of Quick Fire Exercise. Target E, five yards apart, one for each man firing. This firing should be done by the numbers as described in Quick Fire Exercise.

3. AUTOMATIC FIRE (TARGET E).—Being at Raise Pistol, pistols locked. At the command "Commence Firing" empty the magazine in seven seconds, keeping the arm extended. Target E, 5 yards apart, one for each man firing.

4. TRENCH FIRE (TARGET E).—Two lines of targets. The first line is composed of F targets, 5 yards apart,

one figure for each man firing. The second line is composed of two E figures, one yard apart, for each man firing, placed in a trench immediately in rear of the figures of the first line. This gives for each firer a group of three figures, one placed on top at the near edge of the trench and the other two in the trench imme-



diately in rear. In case a trench is not available the rifle pit can be used. A gutter, sunken road, embankment, or hedge can be used for this purpose so long as trench fire is simulated.

The firing line advances at a walk from 100 yards takes up a double time 50 yards from trench, fires one shot at the double time when within ten yards of the first target continues to the trench and fires the remaining six shots, automatic fire, at the two targets in the trench in rear of the first line target.

SCORE (TARGET E, BOBBING).—A score will be seven shots. Targets will be marked after the men in the firing line have completed their scores. All loading and firing should be done by command.

COURSE: 1. SLOW FIRE.—10 yards. Minimum of one maximum of five scores.

2. QUICK FIRE.—10 yards. Minimum of one maximum of three scores.

3. AUTOMATIC FIRE.—10 yards. Minimum of one maximum of three scores.

4. TRENCH FIRE.—Minimum of one maximum of three scores.

Bayonet Training.

A. THE FUNCTIONS OF BAYONET TRAINING ARE:

1. To teach the correct use of the bayonet until it becomes instinctive.
2. To develop the fighting spirit.
3. To develop speed, accuracy, and coördination.

B. GENERAL PRINCIPLES:

1. Fencing, in modern combat, is out of the question. Almost every fight will consist of but one or two motions. Hence the class must be taught that the best defence is the quickest offensive.
2. Every available means of offence, with hands and feet as well as with rifle and bayonet, is a part of bayonet training.
3. Teamwork is essential. Men must be taught, especially in the combat, to exercise, to seize every opportunity to act together.
4. Personal control during combat, especially at night, will be nearly impossible. Control should be practiced, therefore, in the form of clear instructions delivered to the men before assault, and fulfilled individually.
5. In every assault and combat exercise, the men must be taught never to leave an enemy alive, or who may be alive, behind them.

C. TECHNIQUE OF BAYONET COMBAT:

1. The *point* is the main reliance. Its use should be practiced in every possible situation, until a correct choice or combination of long point, short point, and jab, and the execution thereof, becomes a matter of instinct.
2. The point must always be directed at a definite target. The most vulnerable points of the body are: Lower abdomen, base of the neck, small of the back (on either side of the spine), chest, and thighs. Bony parts of the trunk must be avoided by accurate aim.
3. The use of the rifle as a club, swinging or striking, is valuable only:
 - a. When the point is not available.
 - b. In sudden encounters at close quarters, when a sharp butt swing to the crotch may catch an opponent unguarded.
 - c. After parrying a swinging butt blow, when a butt strike to the jaw is often the quickest possible riposte.

The use of butt swings overhead or sidewise to the head or neck, is to be avoided; they are slow, inaccurate, easily parried or sidestepped, and leave the whole body unguarded. After every butt blow a thrust must immediately follow, since no butt blow, of itself, is apt to be fatal.

4. The parries must be regarded and practiced chiefly as means of opening the opponent's guard; hence, a thrust must immediately follow each parry.
5. The foot movements shown in the old manual are useful only to promote quickness and steadiness. They should, therefore, be

C. **TECHNIQUE OF BAYONET COMBAT** — (*Continued*): practiced in combination with the points and butt blows, and so combined can be executed in the oblique directions as well as at right angles. The left foot moves in the direction of the thrust.

D. **MANUAL OF THE BAYONET**: There are only 7 exercises to learn in the new bayonet drill:

1. *Guard*.— Point of the bayonet directed at the opponent's throat, the rifle held easily and naturally with both hands, barrel inclined slightly to the left, right hand at the height of the navel and grasping the small of the stock, left hand holding the rifle at a convenient position above the lower band, so that the left arm is slightly bent, making an angle of about 150 degrees. The legs should be well separated and in an easy position. Lean forward, on your toes, left knee slightly bent, right foot flat on the ground and turned to the right front. Remember in this position to have your eye on your opponent, do not restrain your muscles, keep them taut, but flexible.
2. "*High Port*."— The hands hold the rifle as in guard; the left wrist level with, and directly in front of the left shoulder; the right hand above the right groin and on level with the navel.

Remember that the barrel in this position is to the rear. This position is assumed on the advance without command.

3. "*Long Point*."— Being in the position of "guard," grasp the rifle firmly, vigorously deliver the point to the full extent of the left arm, butt along side and close to the right forearm; body inclined forward; left

D. MANUAL OF THE BAYONET — (*Continued*):

knee well bent, right leg braced, and weight of the body pressed well forward with the fore part of the right foot, heel raised. The right hand gives the power to the point, while the left guides it. If a point is made in the oblique direction the left foot should move in that direction. This exercise is done in 3 counts. At 1 the point is made; at 2, the withdrawal; at 3, resume the guard. The withdrawal must be straight back, and not with the downward motion, until the right hand is well behind the hip.

4. *Right (Left) Parry*.— 1. Straighten the left arm, without bending the wrist or twisting the rifle in the hand, and force the rifle forward far enough to the right (left) to ward off the opponent's weapon, 2. Resume "guard."

Remember to keep your eyes on the weapon to be parried.

5. *Short Point*.— 1. Shift the left hand quickly toward the muzzle and draw the rifle back to the full extent of the right arm, butt either high or low as a low or high point is to be made. 2. Deliver the point vigorously to the full extent of the left arm. 3. Withdrawal. 4. Resume the "guard."
6. *Jab Point*.— 1. Shift the left hand quickly toward the muzzle, draw the rifle back, and shift the right hand up the rifle and grasp it above the rear sight, at the same time bringing the rifle to an almost vertical position close to the body. Bend the knees. 2. Straighten the knees, jab the point of the bayonet upward into the throat or under the chin of the opponent — chiefly by a body movement. 3. Withdrawal. 4.

D. MANUAL OF THE BAYONET — (*Continued*):

Carry the rifle forward with the left hand, grasping the small of the stock with the right. 5. Resume guard. Remember in the first motion to have the hands at least 4 inches apart.

7. *Butt swing — butt strike — out.*— 1. Swing the butt up at the opponent's ribs, forearms, etc., using a full arm blow, bringing the rifle to a horizontal position over the left shoulder, butt to the front. 2. Advance the rear foot, and dash the butt into the opponent's face. 3. Advance the rear foot and at the same time slash the bayonet down on the opponent's head or neck. 4. Resume the "guard."

(The easiest guard to a swing at the crotch is simply to get the left knee in the opponent's right.)

E. PROGRESSIVE EXERCISES:

1. The class works in pairs with scabbards on bayonets. One man alternately in each pair signals; the other promptly executes the movement, at the target, designated by the signal. The following signals are suggested:

The hand, placed against the body, indicates the target.

Long point — Back of hand outward.

Short point — Palm of hand outward.

Jab point — Hand horizontal against chin, palm down.

High port — Fist against left breast.

Parry right (left) — Hand waved to right (left).

Butt swing — Fist against crotch.

Butt strike — Fist against jaw.

E. PROGRESSIVE EXERCISES — (*Continued*):

Instead of signals, thrusting sticks are then used. These are strong wands having a padding of paper and burlap over one end and a rope ring tied to the other. Points and butt swings are executed at the padding and rings, respectively, as these are presented. The man holding the stick must remember to stand to one side of the man with the bayonet.

2. AS IN FIRST EXERCISE.— One man thrusts with a stick; the other parries.
3. THRUSTS ARE PRACTICED AT DUMMIES, first from a distance of five feet, then by advancing two paces or more. To simulate fighting conditions, a frame is then arranged in which dummies are slung on ropes passed over pulleys, and so manipulated that as the man withdraws his bayonet from one dummy another swings at him from a different direction.
4. AS SOON AS PROFICIENCY HAS BEEN GAINED in the above exercises, the assault practice is taken up.
 - a. *A course is laid out as follows:*
 - (1) A fire trench about 60 yards long, well *revetted*.
 - (2) 20 yards in front of the trench, smooth wire entanglements.
 - (3) 15 yards further, another trench, parallel to the first, 60 yards long, 4 feet deep and 4 feet wide. In this trench prone dummies are placed, one per yard.
 - (4) 15 yards further, 60 dummies, hung on frames, parallel to the trenches.

E. PROGRESSIVE EXERCISES — (*Continued*):

- (5) 15 yards further, a hurdle 4 feet high and 60 yards long, parallel to the trenches.
- (6) 10 yards further, a low trip wire, stretched parallel to the trenches.
- (7) 10 yards further, 60 dummies, hung on frames, parallel to the trenches.
- (8) 15 yards further, a large trench, 60 yards long, 6 feet deep, 10 feet wide, containing 60 prone dummies, 1 per yard.

b. Procedure:

Each platoon, in turn, enters the first trench at skirmish intervals, bayonets fixed. On signal, all move out at a walk, guiding carefully in line on a leader previously designated. After passing each obstacle, the line is again carefully formed. On each of the swinging dummies one of the seven movements of the manual is used; a long or short point is used on each prone dummy. All go down into the last trench together, with a good loud yell, point of the bayonet level with the toe, and land on the dummies in the bottom, stabbing as they land. This course should be repeated several times at quick time, then at double time, and finally at a run. Remember that in the advance the rifle is carried at high port.

E. PROGRESSIVE EXERCISES — (*Continued*):

5. COMBAT EXERCISES (to be used in conjunction with the assault practice):

a. *Equipment for each man:*

Thrusting stick or other wooden rod with wooden ball or thick padding covering one end. (Old rifles with spring-bayonets are even better.)

Plastron.

Baseball mask.

Pair of broadsword or single stick gloves.

b. *Procedure:*

The class is formed in two lines of about equal numbers, facing each other, about fifty paces apart, with intervals in each line of about two paces. A leader is designated for each line. The instructor stands at one end of the space between; an assistant at the other end. On the instructor's whistle, the lines advance, guiding carefully on their leaders. When about ten paces apart, they charge, each seeking to break and roll up the opposing line. Sticks are carried and used as rifles with bayonets fixed. Any other use disqualifies. Use of the butt is barred. One thrust on the plastron or mask, or two hits on the extremities, disables the recipient, who must promptly retire — or be retired. The combat continues until the second whistle, blown not more than 30 seconds after contact; when they cease fighting promptly, separate, and form as before.

E. PROGRESSIVE EXERCISES — (*Continued*):*c. Criticism:*

After each combat, the instructor will criticize the manner of advance and of fighting, especially the alignment kept in the advance and the team work in combat, and the advantage taken of opponents' mistakes. He counts the casualties and awards the decision. He must continually urge the men never to lag behind nor advance ahead of the line, never to allow large gaps to occur in the line, and always to seize the advantage given by opponents who disregard these principles.

*d. The terrain for this exercise should be frequently varied. It may also be conducted at night, the opposing sides being clearly distinguished.**

Machine Guns.

1. Properties of the machine guns are divided into three general classes: Mode of action, fire, and inconspicuousness.

(a) **THE MODE OF ACTION.**—The machine gun acting only by its fire can prepare an attack or repulse an offensive movement, but it does not conquer ground. The latter role is almost exclusively that of infantry which is fitted for crossing all obstacles. When it will suffice to act by fire, employ the machine gun in preference to infantry, preserving the latter for the combined action of movement and

* The last exercise was devised and perfected by M. Jules Leslabay, Master of Fencing, Harvard R. O. T. C., 1917. It is more completely described in his "Manual of Bayonet Training."

MACHINE GUNS — (*Continued*):

fire. By the employment of the machine gun economize infantry, reserving a more considerable portion of it for manoeuvre purposes.

(b) FIRE.—Machine gun fire produces a sheath, dense, deep but narrow. The increase of the width of the sweeping fire gives to the sheath a greater breadth, but when the density becomes insufficient, the effect produced is very weak. Machine gun fire will have its maximum power upon an objective of narrow front and great depth. With the infantry fighting normally in thin lines the preceding conditions will generally only be realized when these lines are taken in the flank. “The fire of the machine gun parallel to the probable front of the enemy — a flanking fire — must therefore be the rule.” The fire perpendicular to the front will be employed generally on certain necessary points of passage as, bridges, roads, defiles, cuts, roadways, communicating trenches, etc., where the enemy is generally forced to take a deep formation with a narrow front, or where he is in massed formation.

(c) INCONSPICUOUSNESS.—By reason of its small strength the machine gun section can utilize the smallest cover, and can consequently hide from the enemy, the machine gun therefore, more than the infantry, has the chance to act by surprise. The opening of the fire by surprise will be the rule, the machine gun will avoid revealing itself upon objectives not worth the trouble. Flank action and surprise are the two conditions to try for under all circumstances.

2. OFFENSIVE REINFORCEMENT OF A FRONT MOMENTARILY STATIONARY.—The machine guns assisted by small elements of infantry cover thoroughly the getting in hand of the main body, the machine guns presenting to the enemy a line of little vulnerability. The machine guns assist in securing the possession of the ground previously taken, and will permit time to prepare for the resumption of the forward movement. Preparation of the attack—machine gun fire completes the preparation done by the artillery, either by acting on the personnel or by opening breaches in the accessory defenses. At times the machine guns alone may be charged with the preparation of the attack where it is necessary to act very quickly as in pursuit, exploitation of a success. Whatever the situation, concentrate the machine gun fire on one or several points. Machine guns cover the flanks of attacking troops. They follow the advance of these troops remaining on the flanks, so as to be able to fire instantly on all points from which an attack might come. Machine guns will likewise be employed in intervals created intentionally or accidentally between units. It is here a powerful weapon which can rapidly be put into action by the Commander. The personnel and material must be protected as far as possible from the effects of fire.

3. DEFENSIVE.—It is here that the flanking fire is especially necessary. In the defensive preparation of a position the machine guns must be so placed that they will provide along the front several successive fire barriers. The machine guns must be ready at all times to stop by instantaneous fire all hostile attack. In order to have machine gun protection at all, it is absolutely necessary that they be protected from bombardment. This is best done by the following: Place the machine guns under solid cover; make their emplacement invisible; echelon the machine guns in depth. The cover must be placed where it can be hidden from the sight of the enemy, such as a counter slope, a position where

it is impossible to blend it, relief with an accentuated slope of the ground, woods, brush, etc. It is essential that the principal parts of the machine gun casemate be prepared in the rear. Only in this manner will the work be done solidly and rapidly. While the machine gunners and helpers do the excavating, specialists in rear prepare the parts for assembling. The latter are then transported to the position and the casemate is established, hiding the work with the greatest care from enemy observation. Remember that it is of the utmost importance that the machine gun be invisible, so the firing emplacements must be made outside of the shelter, but near enough for the gun to be brought out instantly and put into action. All communicating trenches leading to the firing emplacement must be concealed. Enough emplacements should be built to avoid firing daily from the emplacements especially reserved for cases of attack. Do not place too many machine guns in the first line, in case of a violent bombardment they are sure to be destroyed. The object to be attained is to install the machine guns in conditions, such that if the enemy penetrates our first line, by aid of his bombardment or asphyxiating gas, his infantry as it advances, comes under the fire of machine guns echeloned previously in depth, under whose fire it must stop. It is not a matter of sweeping a wide sector, but of giving over certain strips of ground flanking fire which will cut down surely the enemy's waves when they push forward. The commander should, therefore, divide between the first line and the terrain in rear, the machine guns which he controls, organizing for each particular case a firing emplacement in accord with the surrounding ground and the purpose in view.

GENERAL RULES FOR INSTALLATION.

Machine gunners must under no circumstances abandon their positions. They must, when necessary, allow themselves to be surrounded and defend themselves in

their place to the end. In many cases the heroism and tenacity of a few machine gunners have permitted the rapid retaking of a lost position. To provide for this resistance to a finish, the machine gun emplacements must fulfil the following conditions:

1. Be surrounded by a wire entanglement of irregular trace and as invisible as possible.
2. In the enclosure thus created having several firing emplacements, in case one or more becomes useless.
3. The personnel must have all the means for protection against gas and have in addition rations, water and abundant ammunition.

EMPLOYMENT OF FIRE AND INSTRUCTION.

The more grazing the fire of a machine gun the more effective it is. This causes the principal employment of the machine gun to be at distances where the trajectory is flattest, that is under 800 or 1,000 yards. However, the effort to obtain a grazing fire must not exclude long distance fire. This latter will always be justified when directed upon important objectives, or necessary points of passage. For this fire to have some efficacy, it is necessary to calculate the range with the greatest precision. On the defensive indirect fire will be employed sometimes to annoy the supply, reliefs, etc. To give results, great quantities of ammunition will have to be expended. All of the officers and non-commissioned officers and as many men as possible must be capable of firing the machine gun, so that at the time of an attack no gun will remain idle for want of personnel. It is, moreover, essential to keep up the training of the personnel by having them fire at least twice a month, and, if possible, once a week.

RESUME.

Machine guns must be utilized in the greatest measure in order to *economize the infantry*.

Seek to employ them always in a *flank fire*.

Conceal them so as to get *surprise fire*.

Echelon them and *shelter* them so as to avoid their premature destruction.

POINTS BEFORE FIRING.

1. Thoroughly overhaul the gun to see that no part is deficient, and that the mechanism works freely.
2. See that the barrel is clean and dry.
3. See that the barrel mouthpiece is tight.
4. See that small hole in gas regulator is to the rear.
5. Thoroughly oil all working parts, especially the cam slot and exterior of the bolt, and the striker post and piston.
6. Weigh and adjust the mainspring.
7. See that the mounting is firm.
8. Examine the magazines and ammunition.
9. See that the spare parts and oil reserve are handy.

POINTS DURING FIRING.

1. During a temporary cessation of fire, re-oil all working parts.
2. Replace a partly emptied magazine with a full one.
3. Examine the mounting to see that it is firm.
4. See that empty magazines are refilled without delay.

POINTS AFTER FIRING.

1. Unload.
 2. Oil the bore and chamber, piston rod and gas cylinder.
 3. Sort out live rounds from empty cases.
 4. See that mainspring is eased.
 5. Thoroughly clean and oil the gun on returning to quarters.
- Clean the bore daily for several days.

It is of the greatest importance that the points before, during, and after firing, should be carefully attended to as otherwise the number of stoppages will be unnecessarily increased.

Nine out of ten stoppages are due to want of care.

Immediate action must become instinctive and automatic.

Grenade Instruction.

INTRODUCTION.— War, as it is being fought on the western front, has brought to light many new weapons; but no other weapon that this struggle has brought forth exceeds the grenade in importance. It is not a new weapon, but its present importance is entirely new. Its extensive use has grown out of conditions on the western front; conditions which have never been seen previous to this war. The fact that armies have taken to “digging themselves in” has necessitated the use of some other weapon than the rifle. The rifle with its flat trajectory is of little use against an enemy who is completely hidden from view and who can go on existing under ground. Hence the reversion to the ancient grenade — but with all its modern improvements. The grenade has shown itself to be the weapon that can solve the problem of seeking out an enemy who is under ground; its trajectory is high and its fire is plunging, so that it can be thrown from a place of concealment and protection and into a place equally well concealed from ordinary view.

The importance of the grenade may be judged from its extensive use by both the Allies and the Germans; and also by the formations now adopted by both British and French armies for the purpose of exploiting its use. In a British Battalion the normal percentage of expert bombers is 25. In the French Company 36 per cent of the men are devoted to grenade work.

A grenade has been defined as a slow moving, high trajectory missile containing high explosive and exploding by contact or time fuse. Grenades may be divided

roughly into two classes — 1, hand grenades, and 2, rifle grenades, and each of these classes may be subdivided as regards means of explosion, into 1, time fuse, or 2, percussion grenades.

Among the time-fuse hand grenades may be mentioned the Mills No. 5, Stokes bomb, smoke bombs, fumite bombs, etc. The Mills is easily the most important and has come to be the standard adopted by the Allies. The percussion grenade is little used — the most important among those of this type is the so-called "mushroom," named from its shape.

Chief among the rifle grenades may be mentioned the Mills No. 23, the Hale No. 3 and the Newton No. 24. Just as the Mills hand grenade has become the standard, so has the Mills rifle grenade attained that pre-eminence. A more detailed description of the various sorts of grenades cannot be attempted in this brief space; but one or two diagrams at the close of the chapter may serve to clarify the subject to some extent.

Any course in grenade training should have a three-fold purpose:

1st. To give the individual a practical knowledge of the working of the grenades in use.

2nd. To teach him how to throw them.

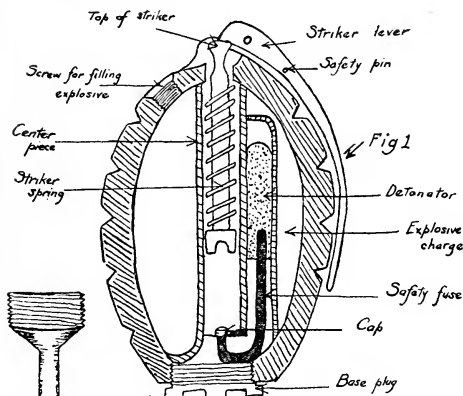
3rd. To make him acquainted with the general principles of organization and the execution of a grenade attack, either as a separate operation or as a part of a general attack. The time spent on any such course of training is a matter to be settled in the light of local considerations; but for purposes of preliminary training of a great number of men a period of two weeks is usually sufficient, with time allotted according to some such plan as this: (1) 10 separate half-hour sessions of practice in throwing from various positions and at the various targets; (2) 2 hours of study and a like amount of time spent in a conference for the purpose of clearing up matters that are hazy. In this brief time (only 9 hours) the foundation may be laid for a more

thorough training of the specialists later on. In any such course the use of dummy grenades should always precede the use of any live ones; and men should be taught caution above all other things. This is a point easily lost sight of when men are using only dummies; but it is well worth remembering, for obvious reasons.

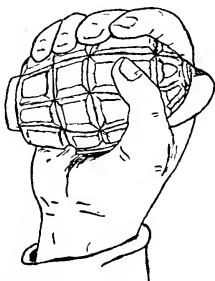
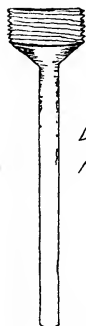
FIRST: GIVING THE INDIVIDUAL A PRACTICAL KNOWLEDGE OF THE WORKING OF THE GRENADES IN USE.—The differences in the construction and the uses of hand and rifle grenades should be brought out clearly. The various sorts of grenades should be explained and men should not forget the importance of knowing the grenades of the enemy as well as our own. This knowledge may one day prove of no little importance. As has already been stated, the Mills No. 5 is the standard among hand grenades of the Allies. It conforms to the general description of hand grenades; *i. e.*, it is an egg-shaped projectile, more or less hollow, and loaded with a charge of explosive. Besides this it has an apparatus for setting off the bursting charge. It weighs 1 pound 5 ounces approximately, and 4 ounces of this is high explosive. The shell being of serrated cast-iron, an explosion will scatter a sort of shrapnel over an area equal to three times the height. No more need be said of the effectiveness of such a weapon. Among rifle grenades the Mills is also the standard more or less, although the French make great use of a rifle grenade that fits over the muzzle of the rifle, fired by ball cartridge, in contrast to the Mills No. 23, which has a rod running down the barrel of the rifle and which is propelled by the explosion of a blank cartridge. The maximum range of this grenade with a 5½-inch stem is 120 yards, the gun being fired at an angle of 45 degrees. The Newton Improved (a rifle grenade which explodes on contact) has a range of 250 yards; the Hale No. 3 also explodes on contact and has a range of 200-225 yards.

SECTION - MILLS HAND GRENADE #5

Plate
7

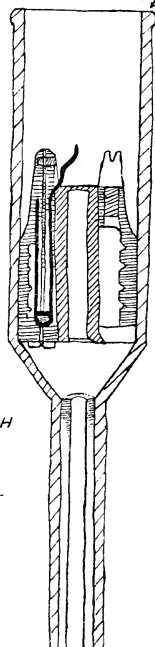


Detachable base plug - permitting the
Mills to be used as a rifle grenade.



Grenade about to be thrown.

Fig II



FRENCH
RIFLE
GRENADE

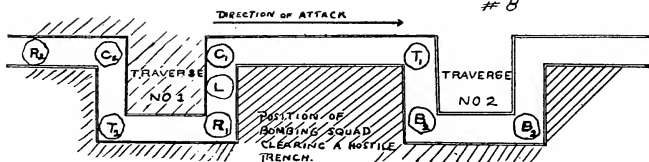
SECOND: INSTRUCTION IN THROWING.—As previously stated the use of dummy grenades should precede the use of any live ones. Due precautions should be taken at all times, even when working with dummy grenades, for a habit of carelessness is not to be tolerated with this sort of weapon. Men should be instructed to throw from standing, kneeling and prone positions; although this last-named position is little used. Distance is important but ACCURACY IS ESSENTIAL. Men should always be taught to throw at a definite target, even when throwing in the open during preliminary work. The men may work in groups, one group throwing and the other returning. This method keeps all hands occupied and furnishes a medium for a little competition, which is a very helpful thing in training of this sort. A manual of the following sort may be of use in acquiring the proper sort of throw.

1. Pick up the grenade with the left hand.
2. Prepare to throw — face to the right and transfer the grenade to the right hand.
3. Take aim — left hand and arm extended up and straight toward the target, right hand and arm behind the thrower in the same plane as the left.
4. Withdraw pin with left hand.
5. Throw — use a straight overhead motion and do not bend the arm at the elbow. It is not a baseball throw. The tendency for most of us Americans is to follow a perfectly natural habit — try to use the baseball throw. This is to be discouraged for several reasons, the chief one being that the grenade weighs about a pound and a half, whereas our baseball weighs only a third of this amount. Then, too, it often happens in the trenches that a grenade duel will last for hours. Under such circumstances the last grenade may decide the

issue and endurance will be a mighty telling factor. Hence, the insistence upon the overhead throw.

The preliminary throwing should take place in the open but always with a definite target, an outline of a section of trench being the best sort of target. Another excellent idea is to have a target arranged according to the diagram shown herewith and to keep score. This procedure will also add incentive for competition and will produce results. After men have thrown in the open for a sufficient period, they should proceed to the next stage: This is the stage of throwing in a cage or from behind and over obstacles. There are three distinct phases of this feature of the training: (1.) The thrower sees the target but must throw over an obstacle. (2.) The target is invisible; the thrower is aided by an observer and a periscope; the observer notes the fall of the grenades and gives directions as follows—"So many yards right or left" or "Shorten or lengthen so many yards." (3.) Actual throwing in trenches. This stage immediately precedes that of "working up a trench."

THIRD: INSTRUCTION IN GRENADE ORGANIZATION.—Men should be given a certain amount of theoretical instruction as to the composition of the armies now on the western front; this in order that they may see the part that grenadiers and bombers are playing in the struggle. They should be shown the organization of the British Infantry and how the first section of each platoon is composed exclusively of bombers and—rifle grenadiers; they should also be taught how the bombers and grenadiers are concentrated in the French organization. The typical bombing squad consists of 7 or 8 men and a leader who take positions as follows: 1 and 2, bayonet men; 3, first thrower; 4, first carrier; 5, leader; 6, rifle bomber; 7, second thrower; 8, second carrier; 9, rifle bomber. One

Plate
8

L = Leader
B = Bomber
T = Thrower
R = Rifle Grenadier
C = Carrier

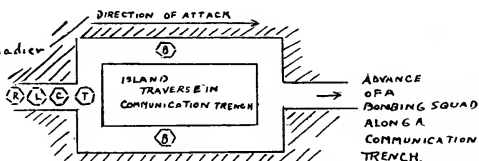
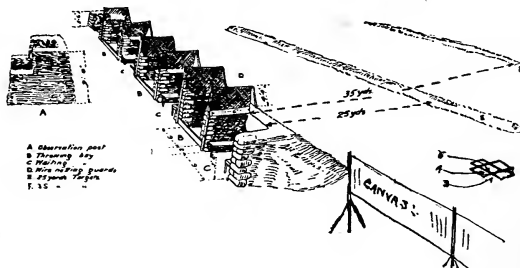


Fig. IV

GRENADE RANGE.

Fig. III



of these bayonet men may be reserved to act as a sniper. The leader acts as an observer and directs the work of the bombers. The rifle bombers outrange the hostile bombers and also afford protection on the flanks. Every man must be taught his job and must be thoroughly instructed in the work of the squad as a whole in order that each man may be able to fill any position and that there may be perfect teamwork.

POINTS TO REMEMBER.

1. Men should always have a definite target for their throwing — an outline of a trench is usually to be preferred.

2. Caution in handling grenades should be made a habit.

3. Accuracy is essential.

4. Training should be progressive, both for men and organizations.

5. Keep up competition among the men; rivalry will increase practice and men will throw grenades for recreation. This will get results. Let two men throw at each other. A good shot will make the other man move.

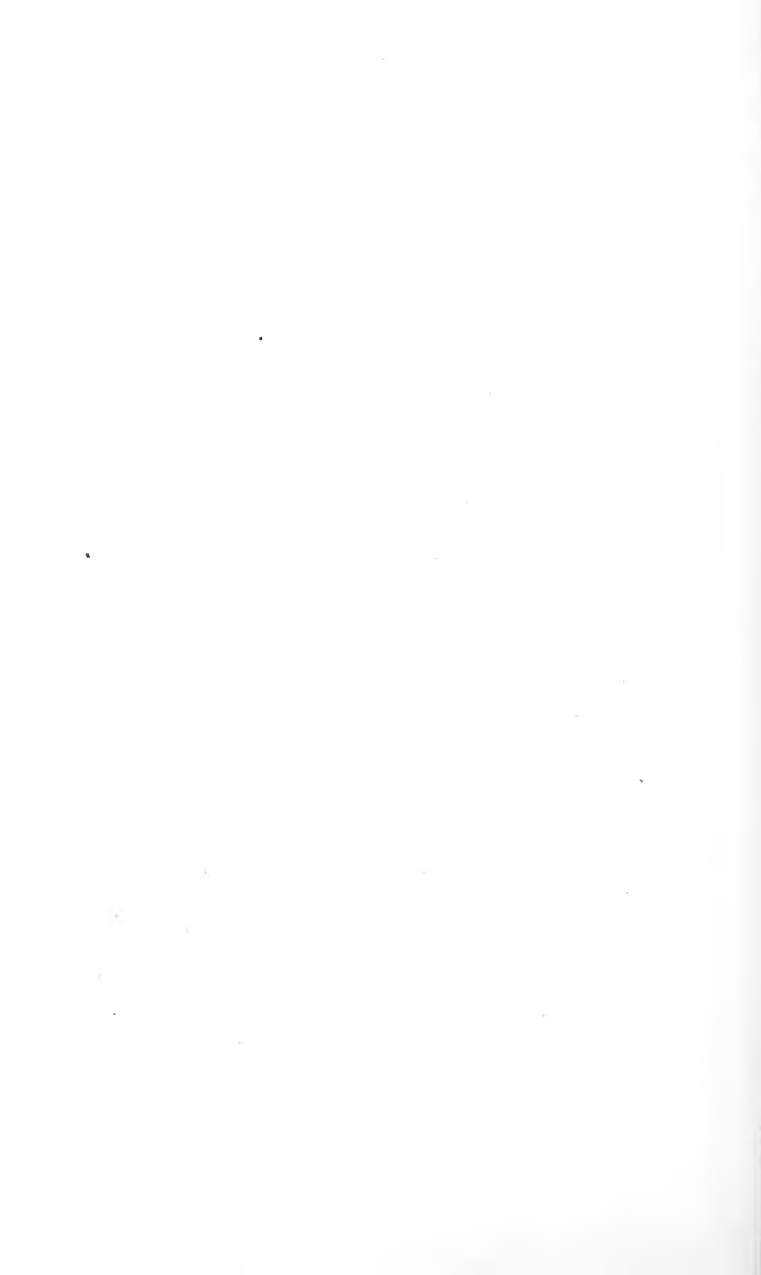
6. Insist upon the straight overhead throw. It is less tiresome and when developed properly will give equal accuracy with any other method.

7. Teamwork in a bombing squad is essential.

8. Under new methods of warfare every infantryman is a bomber; but specialists must be trained.

9. Officer must be a real leader and the best fighter in his platoon.

10. Qualification tests should be arranged and the better qualified men taken for special training in this art.



CHAPTER 5.

Map Sketching.

Map sketching is an important factor in trench warfare to-day as it is in a war of movement. A fairly accurate map will indicate more than many words and in much less time. Time is the great factor in war. Instruction must also be rapid. Here are ten lessons which would occupy a week if taken morning and afternoon. The aim of the instruction as in company rifle shooting is to train many men to do a satisfactory job, not to make a few finished topographers. Neatness, accuracy and initiative are cardinal points.

For the instructor, reference should be made to *Grieves' "Military Sketching and Map Reading,"* 2nd edition, if he desires to supplement any points given here.

LESSON 1. (CLASS ROOM — FOUR HOURS.)

Problem — Map Reading.

Study the conventional signs found in the "Manual for Non-commissioned Officers and Privates of Infantry of the Army of the U. S.," 1917, page 273, or in *Grieves*, pages 28-35. These conventional signs are not universal and must be used only as indications of the general practice.

In map sketching in the field few conventional signs are used, and the items of importance are written on the map, such as WOODS, CULTIVATED, HEDGE, SWAMP, etc.

TAKING UP MAP SCALES.— There are three ways of indicating the relation between the actual distance on the ground and the space the same distance occupies on the map:

1. The graphic scale is a straight line divided into units, as miles, yards, feet or meters, which represents the actual ground distance. Thus if $6'' = 1$ mile the line

would be six inches long and marked 0 at one end and 1 mile at the other, three inches being marked $\frac{1}{2}$ mile, etc. It is important to always have this graphic scale on a map so that if the paper gets wet or is stretched from its original size the scale will change in the same proportion.

2. A statement in words or figures, e. g., 3 inches equal one mile, meaning that 3 inches measured anywhere on the map represent 1 mile on the actual ground.

3. The Representative Fraction (generally known abbreviated as R. F.) having a number above the line that shows the unit length on the map and below the line the number of units which are in the corresponding actual ground distance. For example, if $1'' = 1$ mile, then the R. F. is:

$$\frac{1'' \text{ (map distance)}}{63360'' \text{ (1 mile — ground distance)}}$$

if $3'' = 1$ mile the R. F. is:

$$\frac{3'' \text{ (map distance)}}{63360'' \text{ (1 mile — ground distance)}} \quad \text{or} \quad \frac{1}{21120}$$

if $6'' = 1$ mile:

$$\frac{6''}{63360''} \quad \text{or} \quad \frac{1}{10560}$$

if $12'' = 1$ mile:

$$\frac{12''}{63360''} \quad \text{or} \quad \frac{1}{5280}$$

In reading a map one must know the scale and also where the North is. This is always indicated by an arrow pointing either to the magnetic North or the true North. If to the magnetic North the needle will have but one barb away from the true North. The angle between the magnetic and the true North is the declination.

Placing the map in proper relation to the ground so that points of the compass coincide on map and ground is called *orienting the map*.

In map work there is one vital point to remember; practically all the ground surface is in its present form as a result of water action

1. Look for the water courses, that is the drainage system. It will give the general slope of the land.

2. Look for the high points between the water courses, remembering that there is always a valley then a hill then a valley again continued in succession.

3. Finally locate towns, railroads, main highways and work down to the minor details.

In measuring a map to get the actual distances on the ground, copy the graphic scale on any piece of paper and apply this directly or if your distances exceed your scale use the edge of a piece of paper and then apply it to the graphical scale on the map.

LESSON 2. (FIELD WORK — FIVE HOURS.)

Problem — Stride Scale Map Making.

Producing a map from the actual ground requires certain instruments. The second lesson takes up the preparation of the stride scale on the alidade and the different kinds of maps made in military sketching.

The alidade is a triangular ruler with one or more working scales on it beside other measurements. The *working scale* is, for infantry, the stride or the space of ground covered from left foot to left foot again in walking, reduced to the proper map distance. This varies with individuals of course. Any scale of units, however, can be used as, horse trot, telegraph poles, etc.

The working scale for each man is made by having him step off a measured course, say 440 yards. The ground should not be too even as a general average is needed, moreover the pace must be the natural gait of the individual under ordinary circumstances. Let him count the course three times then average the three results for the final estimate.

Now to convert this into a working scale for the alidade made on a scale of six inches to the mile; take the case of a man who takes 220 strides in 440 yards:

$$440 \text{ yards} = 15,840 \text{ inches}$$

$$15,840 \div 220 = 72, \text{ or his stride in inches}$$

$$\text{then } 880 \text{ strides} = 1 \text{ mile or } 6'' \text{ on the scale.}$$

It is better to have a scale of 1,000 strides which is easily done by the proportion:

$$1,000 \text{ sts.} : 880 \text{ sts.} :: x : 6$$

$$x = 6.8$$

now draw a line 6.8 inches long and a diagonal line from it; divide this diagonal line into 10 equal parts for each 100 paces at any convenient scale and draw a line from the end of the tenth part to the end of the 6.8 inches line, draw lines parallel to this line from each of the divisions. The 6.8'' line is then divided into 10 equal parts; each of these parts may be divided in the same manner into tenths.

Your scale is ready to be pasted or transferred to the alidade and each 6.8 inches on the map will equal 1,000 of your strides on the ground, or about 1 1-12 miles (2,000 yards).

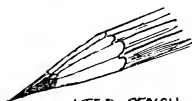
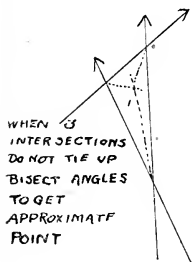
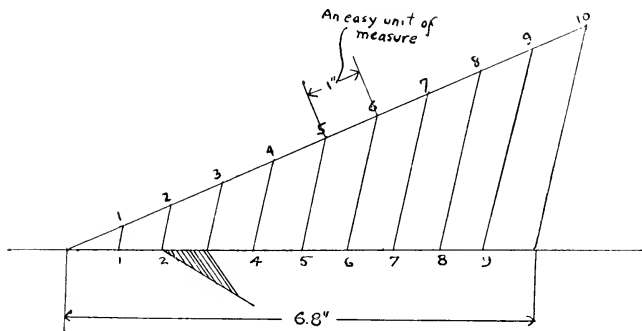
There are two general classes of sketches:

1. ROAD SKETCH.—A traverse (passing over) made along a definite rout showing all features of military importance for a distance of 200 or 300 yards on each side of the road. A road sketch is always made on a scale of 3 inches to 1 mile.

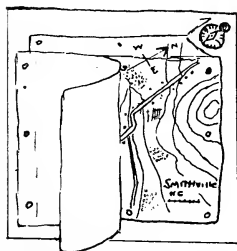
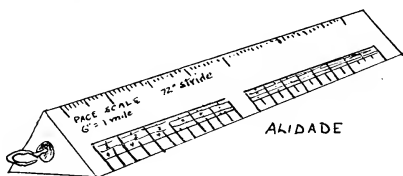
2. AREA SKETCH.—A map of a definite locality. There are 3 kinds of area sketches according to opportunity for observation:

- (a) Position Sketch — when access may be had to the whole area.
- (b) Outpost Sketch — where part of the ground must be mapped without passing over it. This form is applicable particularly to trench warfare. Intersec-

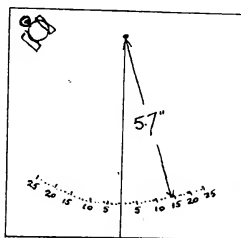
Plate # 9



KEEP PENCIL POINT SHARP AT ALL TIMES



SKETCH BOARD WITH COMPASS AND PAPER PROTECTING WORK



SKETCH BOARD REVERSED FOR USE OF SLOPE BOARD

2. AREA SKETCH — (*Continued*):

section and resection are used to locate points within the enemy's lines.

- (c) Place Sketch — when sketch must be made from one point, as when the proximity of the enemy would prevent any movement; as from trench observation stations, etc.; also an elaboration of the *landscape* or *horizon* sketch which is used everywhere in the trenches today. From one point an actual outline of the opposite trench and background is made in perspective, reference points on the horizon being marked on the edge of a pad at arm's length. These marks are then prolonged on the paper and the horizon is sketched. In like manner the middle distance and the foreground come under observation and are put on in one below the other.

Time must be allowed the men to make their stride scales and to paste or transfer them to their alidades.

LESSON 3. (FIELD WORK — FIVE HOURS.)

The problem is to make a Position Sketch about one mile square closing the traverse. First considering the sketch board, compass, pencils, etc.; next the orienting, sighting and pacing; finally the uses of intersection and resection and in making allowance for error.

The sketch board should be about 12 to 18 inches square, being used with or without a tripod. A cheap camera tripod is excellent. The board should have a compass attached so that it will remain in the same relative position on the board. If iron thumb tacks are used avoid getting them too near the compass. A hard pencil must be used to obtain good results. The paper must be smooth and where possible covered with another sheet fastened on but one side which will

readily fold back when one desires to work on the sketch.

By always placing the board so that the compass reads North it will be oriented correctly. Care must be used when near electric wires or masses of metal as automobiles, railroad tracks, etc., which will attract the needle from its true azimuth (N. and S. direction) and thus throw off the whole map. In such cases it is far better to back sight and use the compass only at intervals to verify the sights.

This brings up the matter of sighting. It is important to make long shots thus reducing the amount of individual error. In taking a sighting point make sure it can be recognized when reached and make sure to look at the reverse side in order to recognize it in case of back sighting if necessary. Always carry several large-headed pins using one at your present station and resting the side of the alidade against it, swinging the other end for sighting.

After sighting and lining the sight on your sketch, step off evenly to pace the distance. Time is always a factor in military mapping and where possible make mental notes as you go along as to where roads or other important features are located, so that you can place them in their proper place on the map when you have reached the next station. It is well always to set a good pace for here time can be readily saved.

Making an *intersection* is very simple. For as the sketcher moves along he ties his map together by sighting at any prominent object near his area, running these lines very lightly and only where he assumes the points to lie on his map. An abbreviation on the line or a number referring to a list off to one side will answer to recall the object. At any other station where the same point can be seen a similar line is drawn and where the two lines cross will be the location of the object. In the case of three lines not crossing at the same point take the middle of the triangle so formed.

Resection is just the reverse of this process. The mapper wants to know where he is located on the map. If he is properly oriented and can aim at two points on the ground which he has located on the map, he places a pin at one of these locations on the map and aims with the alidade at the object on the ground drawing a line towards himself; this is repeated with the other known point and where the two lines cross on the map will be the point he is standing at.

In intersection the greatest accuracy is obtained by running the rays so as to meet as nearly as possible at right angles.

In running a traverse the sketcher must expect to find some error at his closing point. This error must be distributed over the whole traverse so as not to have all the error concentrated at one point.

LESSON 4. (FIELD WORK — FOUR HOURS.)

PROBLEM.— Make a simple sketch, containing topographical details using the traverse made during the preceding lesson. Use of conventional signs should be emphasized and the appreciation of features of military importance impressed. A tendency is to put in details to a point of confusion. Judgment must be developed to choose telling points.

A sharp pencil is always needed in sketching; in putting in the topographical details special attention must be given to the pencil. Keep the point sharp and make clear, distinct signs.

LESSON 5. (CLASS ROOM — FOUR HOURS.)

PROBLEM.— Contours, the Vertical Interval, Use of the Slope Board, Map Distance, Visibility and Profiles.

A contour is an imaginary line on the surface of the earth all points of which have the same elevation from a base or datum level, sea level usually being this base.

Slice an apple into pieces $\frac{1}{2}$ -inch thick; where the cuts come may represent the contour lines. Take these individual slices, beginning at the bottom and outline them on a sheet of paper with a pencil (having run a nail through the apple first to keep each piece in place). The resulting circles will represent the apple's outline at $\frac{1}{2}$ -inch intervals.

Contours are always at equal elevations from each other, and the Vertical Interval (known by the abbreviation V. I.) is the measure between successive contour lines. In military maps the V. I. is always the same for each map scale:

1 inch to the mile, the V. I. is 60 feet.

3 inch to the mile, the V. I. is 20 feet.

6 inch to the mile, the V. I. is 10 feet.

12 inch to the mile, the V. I. is 5 feet.

Note that the V. I. changes in proportion to the scale, a map on a 3 inch to the mile scale is 3 times as large as one on a scale of 1 inch to the mile, while the V. I. is $\frac{1}{3}$ as great, hence the former shows 3 times as many contours as the latter.

Map Distance means the horizontal distance between two contour lines on a map and indicates a certain degree of slope. As the scale increases the V. I. decreases in proportion and the M. D. therefore remains the same for the same degree of slope whatever the scale of the map. By computation we find that a one degree slope rises one foot for every 57.3 feet horizontal distance, so a one degree slope would have a 20 foot rise in 1,146 feet horizontal distance, this distance equals .65 of an inch on the map if the scale is 3" to 1 mile.

The term "Map Distance" is also loosely used to denote distance between points as measured on the map. Care should be taken to distinguish between these two meanings.

Distances between contours, scale 3" to 1 mile:
 $\frac{1}{2}^\circ$ slope = 1.3", 1° slope = .65", 2° slope = .32",

3° slope = .22". These distances are already on the alidade and if you get a slope of 2° with the slope board and have the distance from your station on the map to the point of aim either by pacing, intersection or resection, apply the M. D. scale as many times as it will go. This will give the number of contour lines crossing the traverse and the difference in elevation. The spacing of the contours may not be even between your station and the point of aim in which case the position of the contours must be estimated by eye.

If your elevation above the datum or sea level is unknown at the start assume any elevation which is great enough to put the datum lower than the lowest spot of the area to be sketched.

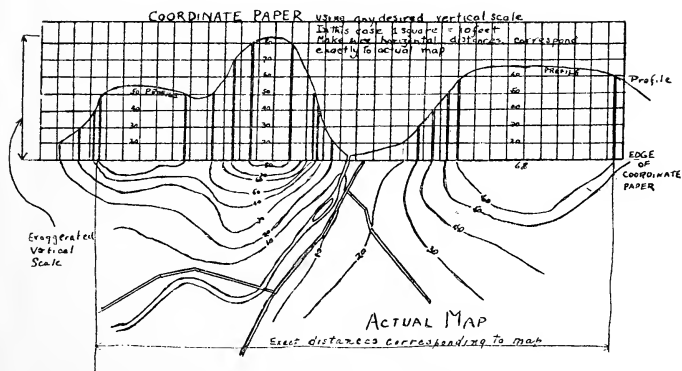
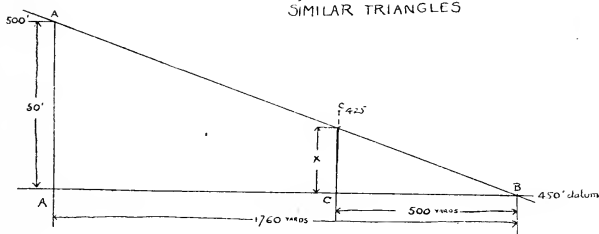
The sketching board is easily made to serve as a slope board in this manner. Hang a plumb bob about an inch below the center of a straight edge of the board while pointing at the horizon, using the back of the board. Mark a point 5.7" directly below and draw a semicircle through it with the same radius. Now mark the point below the center zero and from it divide the arc using chords one tenth of an inch long. This will give a scale reading in degrees. By sighting along the top of the board at some object at the height of the eye from the ground the degree of slope is shown by the plumb bob on the scale below. Care must be exercised to prevent the wind from disturbing the reading. A protractor may be used in the same manner by sighting along the top and using a plumb bob to record the angle.

In reading maps it is important to know whether points are visible from each other due to intervening ridges or other topographical features. This can be told by laying off accurately the distance on the map between the points in question and using as datum the lowest of the 3 points, then draw vertical lines from the 2 higher points, making them in proportion to their elevation with any convenient scale. Draw a line be-

tween the first and last points and, if the intervening vertical cuts this line the second point is not visible from the first. Take for example, two points A and B, 1,760 yards apart, by the map, A 500 feet and B 450 feet above sea level, the intervening point C is 475 feet above sea level and 500 yards from B. As B is the lowest we will call its elevation zero or at datum, then elevation of A is 50 feet and C 25 feet.

Plate
10

VISIBILITY SOLUTION
by
SIMILAR TRIANGLES



Another method of deciding visibility is by proportion. Measure the distance between the three points A, B and C and obtain their elevations above the datum

(lowest of the 3) and using similar triangles. Take the same case as above, letting X represent the point above which the view is clear at 1,260 yards from point A, the line of sight passes through this point.

$$1760 (A - B) : 500 (B - C) :: 50 (\text{elev. A}) : X$$

solving, $X = 14.2$

Now, since the ground at point C is 25 feet above the base and the line of sight passes within 14.2 feet of the base at this place, an observer at A is unable to see B.

The matter of profiling is very simple. Merely mark where the contours cut the edge of a piece of co-ordinate paper and extend the proper elevations, then pass a line through these points, remembering that the surface of the ground has a natural curve.

LESSON 6. (FIELD WORK — FIVE HOURS.)

PROBLEM.— By use of the slope scale on the sketch board and the contour interval scale on the alidade, each man will secure vertical data on the flat sketch made in the fourth lesson. Certain critical elevations will be determined and marked with red flags before hand. The elevations of two points on the ground will be furnished, one as the datum and the other as a check. Draw in contours of this sketch with the help of drainage lines and elevations already secured.

The chief points to be considered are to take slopes from points established on the sketch; to take several sights and average the angle of slope; to properly lay off the elevation by using the slope scale on the alidade; and finally to put in the contours along these lines of sight *on the spot* thus allowing for difference in topography between the point of sight and the station from which the elevation is taken. Careful note must be made of the drainage systems as these are the keynotes to the sketch and finally the contours are connected together, keeping in mind always that no contour stops unless it makes a closed curve or goes off the map. Re-

member also that contours make fingers pointing up stream and are blunt around hill sides. Contours cross streams to opposite points and break at roads, continuing on the other side. Uniform slopes have equally-spaced contours. Do not try to measure every slope, two intersecting elevation sights on a hill will check the height. Put the intervening contours in by eye.

LESSON 7. (CLASSROOM — FOUR HOURS.)

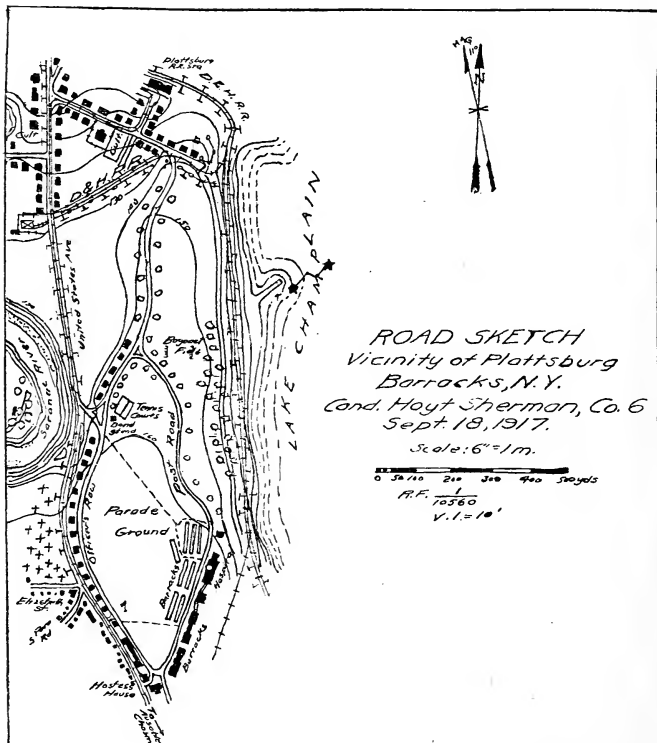
PROBLEM.—Completing the map sketch previously made and making a landscape sketch.

It is important to complete a map and no matter how good it is, if certain points are omitted, the value of the work is very much decreased. The sketcher must clear the sketch of all unnecessary lines and notes and make his lettering clear on the map. Be sure that the following items are on the sketch before it is turned in.

1. Location of the ground shown.
2. Line of magnetic north shown by an arrow, and if declination is known, the true north also.
3. Graphic scale and representative fraction — R.F.
4. Vertical interval — V.I.
5. Sketcher's name and organization to which he belongs.
6. Date.

A landscape sketch is a place sketched with details shown in perspective. The horizon is always of military importance and should be shown as well as intervening crests, woods, houses, etc. Landscape sketching in trench warfare is a necessary accomplishment of the observer. The beginner will at first be confused by a mass of details, but he must note only the outline of the features sketched. First draw the sky line and crests, then fill in the other details with fewest lines possible. Unnecessary shading tends to detract from the clearness of the sketch. There will be great difficulty in getting the perspective, note the size of objects, the further away they are the smaller they seem. Make them so. In making the sketch, hold the pad in front

Plate
#11



with one eye closed, the upper edge of the pad horizontal; a string 20 inches long is tied to the pad and held between the teeth to insure the same distance from the eye each time. Moreover, if it is desired to locate objects by deflection of an angle from a reference point, this can be done by using *mils*. One mil is 1-6400 of a circle. At 20 inches a half-inch interval subtends 25 mils.

The paper is oriented by bringing the sector desired along the upper edge of the pad. The points desired are then in proper positions, both horizontally and vertically.

Place a mark at the upper edge for points desired. The sky line should be located first. Now carry these lines down, having drawn three horizontal lines about $\frac{1}{2}$ inch apart, beginning with the highest point on the top line. Marks locating the other features are likewise transposed in vertical and horizontal portions.

Now draw sky line connecting transposed marks, then such other points as crests, trenches, houses, etc. After practice most other features can be drawn in without reorienting, the sky line having been drawn. The vertical elevation should be slightly exaggerated. Objects in the background should be drawn in lightly while nearby features are indicated by *heavy lines*. Avoid details, draw only silhouette, shade only in showing woods.

LESSON 8. (FIELD WORK — FIVE HOURS.)

PROBLEM.— Make complete area sketch including contours, with no data furnished other than the initial elevation.

Before commencing the work summarize the important points involved.

1. If possible select a base line.
2. Locate as many points by intersection as possible.
3. Make traverse by road, check locations by resection.

4. At good observation points observe and complete the sketch as far as possible.

At each station keep the following points in view:

1. Back sight on previous station.
2. Select new sighting point ahead.
3. Determine elevation by slope board.
4. Put in contours where possible noting the drainage and critical points of the general slope and the terrain.
5. Put in details along traverse just made of all topographical features of military importance.
6. Determine your present elevation.
7. Make as many shots for intersection as you can and mark them.
8. Look for possible resection shots.

LESSONS 9 AND 10. (FIELD WORK — NINE HOURS.)

PROBLEM.— Make a road sketch of about 12 miles with scale of 3 inches to the mile, V. I. 20 feet. This should include details of military importance to a distance of 300 yards on either side of the road.

Keep in mind these points:

1. Start carefully and give attention to every part of the map.
2. Keep the board properly oriented.
3. Watch the water drainage systems.
4. Put down all necessary details at each *setup*.
5. Note high hills and towns not on immediate route, condition of roads, fences, cultivation, hedges, cuts and fills, bridges (kind and length), railroads, telegraph and telephone lines, schools, churches, etc., notice particularly woods and points of concealment for hostile troops.

Do the work at each station for elevation, contours and the noting of necessary details so that the sketch will be complete as you go along. Make certain that the title of the sketch, scale, orientation, etc., are all

clearly indicated, for a road map may have to be completed by another or may be called for suddenly when it will be useless without these details.

Remember there are but two things absolutely essential to a good road sketch; a good traverse and the location of the drainage system in its relation to this traverse. With this control approximate contours can be drawn by anyone having a knowledge of the principles of topography. Never plot unimportant details. Prominent buildings and farm houses are of value for locating oneself. Woods and orchards are shown for tactical reasons but no one can expect to show every fence, ditch or bit of cover that might hide a patrol.

Map Reading.

(GETTYSBURG 3" MAP — HUNTERSTOWN SHEET.)

Plattsburg Barracks, N. Y., Sept. 17, 1917:

1. What is the shortest distance by road from Biglersville to Texas?
 2. Describe the road between Texas and Table Rock.
 3. Is it a cut or a fill along the railroad about $\frac{1}{2}$ mile east of Granite Hill Station?
 4. What is meant by 931 on Chestnut Hill?
 5. Can a man on the summit of hill 712 (about one mile southwest of Plainview) be seen from the town of Plainview?
 6. Point out two fords on the Conewago River.
 7. Where is the highest point on the road from Plainview to Heidlesburg?
 8. Describe the fences along the road from Texas to Table Rock Station.
 9. Is Hill 566 S. W. from D. Wert visible from Henderson Meeting House?
 10. Of what material is the bridge at Bridge School House constructed?
- Harvard College:
1. Can a sentinel standing at 707 see road fork 535 (about 1,500 yards south)?

2. An enemy patrol is marching north on the 544-616 road, and has crossed the stream (750 yards north of 544.) Can this patrol see the Red outguard at 707 from any point between stream and cross roads 616?

3. Can the sentinel at 712 see the road fork 518 (1,850 yards southwest from 712).

4. Can the sentinel at 712 see the cross roads 561 (about 1,200 yards southeast).

Assuming the height of a man as 5' 0" above the ground and trees and buildings as 30' 0".

1. Is the ground at road fork 552 near D. Wirt visible to a patrol on Hill 712? If not what is the obstructing point? Turn in profile, using cross section paper.

2. Disregarding trees, is a man standing on Bridge 523 near Bridge S. H. visible from Hill 712?

Solve by any method desired indicating the method.

1. Make a profile from location of the letter "U" of Chestnut Hill near Center Mills to Hill 712, $2\frac{1}{2}$ miles to the south.

2. Is the location of the letter "B" of Beatrich visible from "U" of Chestnut Hill? If not what obstructs?

1. Can a man on Hill 712 see a man at cross roads 554 in Hunterstown (disregard trees)?

2. To a man standing at the point where contour 680 crosses the road just south of 707, where does the road-bed first become invisible?

1. When the point arrives at Hill 647 can it see the road fork 610 to the northwest?

2. When the flank patrol reaches Benders Church cross roads can it see an enemy patrol at the house midway on the road 534 — 554 one mile to the northeast?

3. Looking north along the Center Mills road from Hill 647, where does the road first become invisible?

1. What does 1/21120 mean?

2. What direction is the general drainage system on this sheet?

CHAPTER 6.

Helpful References to the Articles of War.

(Extracted from M. C. M. and Guide to the Articles of War — Waumbaugh's Lectures.)

MILITARY LAW is the body of rules that governs members of the army. Military Law is based upon the Articles of War approved by Congress, August 27, 1916, effective March 1, 1917. This body of rules defines:

- (1) Punishable offenses of members of the army.
- (2) The Method of determining guilt.
- (3) Punishment.

The present Articles of War are revisions of those from the Revolution.

ARTICLE 1.

DEFINITIONS:

- (1) The word "officer" shall be construed to refer to a commissioned officer (and no one else).
- (2) The word "soldier" to include non-commissioned officer or any other enlisted man.

ARTICLE 2.

PERSONS SUBJECT TO MILITARY LAW:

- (1) All officers and soldiers of the Regular Army.
- (2) All volunteers in the service of the U. S.
- (3) All other persons lawfully called, drafted or ordered into such service.
- (4) West Point cadets.
- (5) Officers and soldiers of the Marine Corps when detached for service with the army, by order of the President.
- (6) All retainers to the camp, or accompanying or serving with the army in time of war, both

PERSONS SUBJECT TO MILITARY LAW — (*Continued*):
within and without territorial jurisdiction
of U. S.

(7) All persons under sentence by court-martial.

ARTICLES 3-18.

COURTS MARTIAL CLASSIFIED:

(A) General Courts Martial.

Appointed by

- (1) President,
- (2) Commanding officer of department or territorial division.
- (3) Commanding officer of separate army division brigade.
- (4) Commanding officer of district or force empowered by President.

Jurisdiction.

Over all persons subject to Military Law as regards all offenses punishable by Military Law.

Sentence.

Everything.

(B) Special Courts Martials (3 to 5 officers inclusive).

Appointed by

- (1) Commanding officer of district, garrison, fort or camp.
- (2) Commanding officer of brigade, detached battalion.

Jurisdiction.

Over any person subject to military law (except an officer), and for any crime not capital. (Only soldiers excluding those having certificate of eligibility for promotion.)

Sentence.

- (1) No power to adjudge dishonorable discharge.

COURTS MARTIAL CLASSIFIED — (*Continued*):

(B) Special Courts Martial — (*Continued*):

Sentence — (*Continued*):

(2) No confinement in excess of six (6) months.

(3) No forfeiture of pay in excess of six (6) months.

(C) Summary Courts Martial (one (1) officer).

Appointed by

(1) Commanding officer of garrison, fort, camp, etc.

(2) Commanding officer of regiment, detached battalion, etc.

(N. B.) When but one (1) officer is present with command he shall be the summary court martial.

Jurisdiction.

(1) Only privates holding no certificate of eligibility for promotion — and

(2) For crimes not capital.

Sentence.

(1) Confinement not over 3 months.

(2) No dishonorable discharge.

(3) No punishment over one (1) month without higher authority.

METHOD OF ENTERING A CHARGE AGAINST A MAN:

Example:

Charge: Violation of the ——— Article of War.

Specification: In that (rank, name, organization) did at (place) on or about (date) etc. (brief description of offence committed).

Signed (Name)

(Rank and Branch of Service)

In cases where there are more than one charge the number of each A. W. is put down in the charge. A

description of each offence is put down separately under SPECIFICATION.

Note that double lines are drawn under CHARGE, single line under SPECIFICATION.

GENERAL REMARKS:

The three (3) Courts Martial are alike in the following:

- (a) Composed only of officers of Army or Marine Corps on detached service with the Army by order of the President.
- (b) Pass upon both law and fact.
- (c) Criminal Courts only.
- (d) Unable to promulgate any finding that does not require approval of appointing authority.

The three (3) Courts Martial differ in the following:

- (a) Number of members.
- (b) Appointing authority.
- (c) Punishments.

ARTICLE 31.

ORDER OF VOTING:

Members in General or Special Courts Martial shall vote from junior to senior.

ARTICLE 39.

LIMITATIONS UPON PROSECUTIONS:

Military offences fall into three (3) groups:

- (1) War desertion, mutiny, murder. Have no limitations.
- (2) Burglary, etc. (A. W. 93) and frauds against Government (A. W. 94). Prosecution limited to 3 years.
- (3) All other offences. 2 years.

In some cases the Statute of Limitations is suspended (A. W. 39), especially in cases of absence from the United States.

The following Articles of War are the important ones for officers to be acquainted with in the ordinary course of his duties:

ARTICLE 54.

FRAUDULENT ENLISTMENT:

Punishment: Court Martial.

“Any person procuring himself to be enlisted by means of willful misrepresentation or concealment as to his qualifications for enlistment and shall receive pay or allowance,” * * *

This offense requires two (2) steps:

- (1) Misrepresentation or concealment.
- (2) Receiving pay or allowances.

ARTICLE 58.

DESERTION:

Punishment: (Wartime) Death or Court Martial.
(Peacetime) Court Martial.

“Any person — who deserts or attempts to desert in time of War * * * death or such other punishment as the court martial may direct * * * any other time any punishment except death.”

Essential features are:

- (1) An intent not to return.
- (2) An overt act of separation from duty.
Drunkenness tends to show absence of the intent.

Minority is no defense.

Enlistment while in desertion does not remove the charge of desertion.

ARTICLE 61.

ABSENCE WITHOUT LEAVE:

Punishment: Court Martial.

"Any person who fails to repair at the fixed time to duty, or goes from same without leave of absence, or absents himself from his command, guard, quarters, station or camp without proper leave * * * "

Does not require to prove intent, yet persons ignorant of military law, drunk or victims of mistake are dealt with gently.

ARTICLE 62.

DISRESPECT TOWARD PRESIDENT, VICE-PRESIDENT, CONGRESS, SECRETARY OF WAR, GOVERNORS, LEGISLATURES:

Punishment: (Officer) Dismissal from the service.
(Soldier) Court martial.

"Any officer who uses contemptuous or disrespectful words against the President, etc. * * * any other person subject to military law who so offends."

Contemptuous language is objectionable and liable to court martial whether

- (1) Used in public or private.
- (2) In official or private capacity.
- (3) Written or spoken.
- (4) True or untrue.

ARTICLE 63.

DISRESPECT TOWARD A SUPERIOR OFFICER:

Punishment: Court-martial.

"Any person subject to military law who behaves himself with disrespect toward his superior officer * * * ."

Unlike Article 62, disrespect toward a superior officer requires no words — acting or neglecting to act (such as rudeness or failure to salute) are enough.

ARTICLE 64.

ASSAULTING OR WILLFULLY DISOBEYING SUPERIOR OFFICER:

Punishment: Death or court-martial.

(1) "Any person subject to military law who on any pretense whatsoever, strikes his superior officer — lifts a weapon, or offers violence against him, being in the execution of his office.

(2) Or willfully disobeys any lawful command of his superior officer."

Drunkenness here tends to show absence of the essential willfulness.

Self defense is not forbidden nor violence to suppress mutiny.

ARTICLE 65.

INSUBORDINATE CONDUCT TOWARD A NON-COMMISSIONED OFFICER:

Punishment: Court-martial.

(1) "Any soldier who assaults or attempts or threatens to strike or assault.

(2) Or willfully disobeys the lawful order of a non-commissioned officer while in the execution of his office.

(3) Or uses threatening or insulting language.

(4) Or behaves in an insubordinate or disrespectful manner."

Drunkenness will not have the effect here of showing an absence of willfulness.

ARTICLE 68.

DISORDERS:

Punishment: Court-martial.

"All officers and non-commissioned officers have power to quell disorders and to order officers who take part in the same into arrest, and other persons into arrest or confinement.

DISORDERS — (*Continued*):

Whosoever, being so ordered:

- (1) Refuses to obey.
- (2) Draws a weapon.
- (3) Otherwise threatens or does violence shall be punished."

This is one instance (except a.w., 67, mutiny) where even a corporal might order a general into arrest.

This is the only instance:

- (1) Where anyone other than a commissioned officer can put an officer under arrest.
- (2) Where anyone other than an officer can order, arrest or confinement of a soldier except on power given by C. O.

ARTICLE 69.

BREAKING ARREST:

Punishment: (Officer) Dismissal, (Soldier) Court-martial.

"Any officer charged with crime shall be placed in arrest by C. O. * * * in exceptional cases * * * confined."

"A soldier charged with crime * * * shall be placed in confinement * * * when charged with minor offense placed in arrest."

"Any person placed in arrest * * * shall be restricted to barracks, quarters, tent, unless limits are enlarged by proper authority."

"An officer or any other person breaking his arrest or who escapes from confinement before being set at liberty by proper authority shall be punished by * * *."

To break arrest is punishable even though a person is innocent of the charge or ought to have been released.

ARTICLE 75.

MISBEHAVIOR BEFORE THE ENEMY:

Punishment: Death or court-martial.

"Any officer or soldier who:

- (1) Misbehaves before the enemy — runs away, or shamefully abandons post.
- (2) Or speaks words inducing others to do so.
- (3) Or quits his post or colors to plunder or pillage.
- (4) Occasions false alarms in camp or quarters shall suffer * * *."

The word "enemy" implies "any hostile body" such as a mob or riot crowd.

ARTICLE 83.

NEGLECT OF MILITARY PROPERTY:

Punishment: Make good the loss and court-martial.

"Any person subject to military law who willfully or through neglect suffers to be lost, damaged, or wrongfully disposed of, any military property belonging to United States of America — shall make good the loss and * * *."

ARTICLE 84.

WASTE OR UNLAWFUL DISPOSAL OF PROPERTY ISSUED TO SOLDIERS:

Punishment: Court-martial.

"Any soldier who sells or wrongfully disposes of any property issued for military service shall be punished * * *."

ARTICLE 85.

DRUNK ON DUTY:

Punishment: (War time) dismissal and court-martial, (Peace time) court-martial.

"Any officer * * * drunk on duty shall * * * in time of war be dismissed * * * and

DRUNK ON DUTY — (*Continued*):

Any other person subject to military law, drunk
on duty * * * shall be punished * * *."

ARTICLE 86.

MISBEHAVIOR OF A SENTINEL:

Punishment: (War time) death or court-martial,
(Peace time) court-martial.

"Any sentinel found:

(1) Drunk.

(2) Asleep.

(3) Or who leaves before being regularly re-
lieved shall be punished * * *."

ARTICLE 92.

MURDER OR RAPE:

Punishment: Death or life imprisonment.

"Any person who commits murder or rape shall
suffer death or life imprisonment as the court-
martial may direct."

No person shall be tried for murder or rape com-
mitted in the limits of the U. S. A. in time of peace.
This is left to civil courts.

ARTICLE 93.

VARIOUS CRIMES:

Punishment: Court-martial.

"Any person who commits

(1) Manslaughter,

(2) Mayhem (cutting),

(3) Arson,

(4) Burglary,

(5) Larceny,

(6) Embezzlement,

(7) Perjury,

(8) Assault with intent to commit any felony,

(9) Assault with intent to do bodily harm.

shall be punished * * *."

Definition of these crimes is left to local law.

ARTICLE 94.

FRAUDS AGAINST THE GOVERNMENT:

Punishment: Court-martial.

Article of War No. 94 is equivalent to prohibiting any person subject to military law from defrauding or attempting, or conspiring to defraud the Government of the U. S. A.—also from stealing, embezzling any Government property.

ARTICLE 95.

CONDUCT UNBECOMING AN OFFICER AND A GENTLEMAN:

Punishment: Dismissal.

“Any officer or cadet convicted of unbecoming conduct shall be dismissed * * *.”

Misconduct may be official or unofficial.

ARTICLE 96.

GENERAL ARTICLE, THE CATCH ALL:

Punishment: Court-martial.

“* * * all disorders and neglects to the prejudice of good military discipline.

All conduct of a nature to bring discredit upon the military service.

All crimes and offences not capital shall be taken cognizance of by

- (1) General,
- (2) Special,
- (3) Summary court-martials according to the nature and degree of the offense and punished * * *.

Article of War 96 covers all crimes and is handy when no other Article of War fits. It is wise, however, to use this Article sparingly on charges, finding if possible the exact Article necessary to cover the case at hand.

EXAMPLES.

PROBLEM 1:

Charge.— Violation of — Article of War.

Specification.— In that Private John Doe, Company C. 301st Regiment Infantry, did at Albany, New York, on or about September 15th, 1917, dress himself in the uniform of a 1st Lieutenant and attend a dance at Odd Fellows Hall.

(Signed) JOHN HANCOCK,
 Captain, 301st Infantry.

Under what article of war, if any, does this belong?

PROBLEM 2:

Charge.— Violation of ——— and ——— Articles of War.

Specification.— In that Sergeant James Hopkins, Company H, 205th Infantry, did at Franconia, N. H., on or about July 4th return to barracks intoxicated.

In that Sergeant James Hopkins, moreover, refused to appear at reveille July 5th.

(Signed) WILLIAM HITCHCOCK,
 Captain, 205th Infantry.

Under what articles of war do these offenses belong?

What kind of court-martial required?

PROBLEM 3:

Charge.— Violation of ——— Article of War.

Specification.— In that Captain George Jones, 125th Infantry did at Laconia, Maine, on or about August 20, 1917, make a speech in which he stated that the Reichstag of Germany was a more efficient and democratic body than the United States Congress.

(Signed) ALBERT SMITH,
 Major, 125th Infantry.

Under what article of war does this offense belong?

NO.	ARTICLES OF WAR.	PUNISHMENT.
54.	Fraudulent enlistment	Court martial
58.	Desertion	{ War: Death or court martial Peace: Except death
61.	Absence without leave	Court martial
62.	Disrespect to President, Vice-President, Sec- retary of War, Con- gress, etc.	{ Officer: Dismissal Soldier: Court martial
63.	Disrespect to superior officer	Court martial
64.	Assaulting or disobey- ing superior officer	Death or court martial
65.	Insubordination to a non-commis- sioned officer	Court martial
69.	Arrest or confinement of accused persons	{ Officer: Dismissal Soldier: Court martial
75.	Misbehavior before the enemy	Death or court martial
83.	Loss, etc., military property	Make good the loss and court martial
84.	Loss of military property issued to soldiers	Court martial
85.	Drunk on duty	{ Officers — War: Dismissal Peace: Court martial Soldiers: Court martial
86.	Misbehavior of sentinel	{ War: Death or Peace: Court martial (except death
93.	Various crimes	Court martial
94.	Frauds against the Government	Court martial
95.	Conduct unbecoming an officer	Dismissal
96.	General article	{ Court martial (General or special)



CHAPTER 7.

Notes on Army Regulations

1. OBEEDIENCE required in the military service — strict and prompt.

2. AUTHORITY EXERCISED with firmness, kindness and justice — prompt and lawful punishment.

3. ABUSIVE LANGUAGE or conduct by superiors forbidden.

4. RESPECT TO SUPERIORS will be extended upon all occasions, whether on duty or not.

5. REMARKS BY OFFICERS or soldiers upon others in the military service, whether praise or censure, public or private, written or spoken, is prohibited. Any effort to affect legislation for a personal favor will be entered against a man's military record.

106. FURLOUNDS not granted to men about to be discharged. Not more than five per cent of a company shall be absent at one time.

109. MEN ON FURLOUGH may not leave the United States.

111. FOR MEN IN FOREIGN COUNTRIES furlough can begin on date of reaching United States.

113. No PAYMENTS made to men while on furlough. Arms not to be taken on furlough or while reporting sick.

(N. B.—There will unquestionably be a modification of this ruling, as the custom abroad is to have every man keep his complete equipment with him whenever possible.)

116. DESERTION. Property lost or destroyed will be charged against deserter.

117. ABANDONED CLOTHES turned over to Quartermaster. Personal effects sold and credited to United States.

121. REWARD OF \$50 for apprehension and delivery of deserter or military prisoner.

127. COSTS OF APPREHENSION will be charged against deserter.

129. NO PAY OR CLOTHES drawn by soldier awaiting trial on charge of desertion.

131. WILL BE RESTORED to duty only by court martial or authority competent to order trial.

132. ABSENT WITHOUT LEAVE. Enlisted man forfeits all pay and allowances while away.

Soldier will not be charged with desertion until commanding officer has reason to believe he intended to desert. Absence of less than 24 hours will not be noted upon the muster roll.

139. DISCHARGE of enlisted man only

1. By order of President or Secretary of War.
2. By order of General Court Martial.
3. By order of United States court or justice or judge, on writ of habeas corpus.
4. By command of territorial department.
5. By disability in line of duty.
6. By sentence of civil court.
7. By purchase.

(N. B.—In time of war it is probable that the last two methods would not be effective for discharge from the service.)

140. FINAL STATEMENTS. The company commander will furnish each enlisted man a final statement (or duplicate) or a full statement in writing explaining why such final statement is not furnished. No final statement will be furnished a soldier who has forfeited all pay and allowances or who has no deposits due him.

147. CERTIFICATE will give

1. Character certified by company commander.
2. Whether recommended for re-enlistment.

In case of negative opinion, the soldier should be notified at least 30 days prior to discharge. In that case the company commander shall convene a board of three officers (if possible) to determine

what kind of discharge shall be given. The soldier will be given a hearing.

151. LOSS OF DISCHARGE CERTIFICATE. Discharge certificates will not be made in duplicate. Upon proper proof of loss or destruction without fault of person entitled to it, the War Department will issue a certificate of service, showing date of enlistment and discharge from the army and character given in original certificate.

Discharge certificates should never be forwarded to the War Department in correspondence unless called for.

159. PHYSICAL DISABILITY CERTIFICATE issued when an enlisted man is permanently unfitted for service, in line of duty. Certificates of disability not made in duplicate.

162. DEATH OF SOLDIER.

1. Effects are secured.
2. Nearest relatives notified.
3. Adjutant General of army notified.

In active service the War Department requires the following reports:

1. Report of company commander to Adjutant General, covering death and disposal of remains.
2. Report of surgeon or company commander embodying
 - a. Cause of death.
 - b. Whether in line of duty.
 - c. Whether due to another soldier's misconduct.
3. Inventory of effects in duplicate.

163. EFFECTS, when not claimed within reasonable time, sold and credited to United States.

No authority for officers to pay debts of dead soldiers.

Trinkets will not be sold but sent to the Adjutant General's office.

165. EFFECTS will be delivered, if called for, to legal representative of deceased after arrears are paid.

167. MEDAL OF HONOR. Authorized by Congress to be awarded to officers and men for extreme acts of gallantry in action, beyond line of duty. Recommendations will be considered by standard of extraordinary merit, and must have incontestible proof.

184. CERTIFICATE OF MERIT. Granted by President to any enlisted man in the service for distinguished acts in line of duty, on recommendation of company commander, based upon statement of eye witness, preferably the immediate company commander. \$200 permanent additional pay is allowed.

285. QUARTERS. Name of each soldier on bunk. Arms on rack. Accoutrements hung up by the belts.

287. SATURDAY INSPECTION preceded by thorough policing. Leaders of squads will see that everything is clean.

1011. NEGLECT OF ROOMS or furniture by officer or soldier a military offense. All necessary costs shall be paid by him.

1178. DESTRUCTION OF TABLEWARE or kitchen utensils by soldiers will be charged against their pay.

288. CHIEFS OF SQUADS are responsible.

1. For cleanliness of men.

2. For their proper equipment for duty.

3. For their proper dress when going "on pass."

374. PREMISES shall be policed daily after breakfast.

290. COMPANY COMMANDER will see that public property held by men is kept in good order, and missing or spoiled articles paid for.

292. ARMS shall not be taken down without proper supervision and by order of commissioned officer.

No changing of parts or finish.

Tompions (muzzle plugs) in small arms forbidden.

657. ACCOUNTABILITY AND RESPONSIBILITY.—Both devolve upon persons entrusted with public property.

Responsibility without accountability devolves upon one to whom property is entrusted, but who does not

have to make returns therefor. Responsibility does not end until property has been given back to accountable officer and a receipt taken, or he has been relieved by regulations or by orders.

Accountability without responsibility occurs when an officer holds proper memorandum receipts for property delivered to others.

EXAMPLE.—The Company Commander is accountable and responsible for the rifles turned over to his company. He is accountable without responsibility when each enlisted man has been issued a rifle and has signed a receipt for it. Each enlisted man is then responsible for his rifle, without accountability, until he returns it in proper condition. In general, therefore: Accountability requires evidence of the disposition that has been made of property. Responsibility implies possession, and requires return of the property or payment for it.

685. LOSS OF PUBLIC PROPERTY by neglect of any officer or soldier shall be paid by him, at such rates as a survey of the property may determine.

Charges will be made only after conclusive proof, and not without a survey if the soldier demands one.

Signing the payroll will be regarded as an acknowledgment of the justice of the charge.

1202. RATION is the allowance of food for one person or animal for one day.

1229. FORFEITURE of ration is made when a soldier overstays furlough.

1339. PAY for continuous service is credited a soldier if he enlists within three months after honorable discharge.

For privates an increase of \$3 per month is allowed up to and including the third enlistment, beyond this \$1 per month increase given up to and including the seventh enlistment.

For non-commissioned officers the increase of \$3 per month continues to and includes the seventh enlistment.

No increased pay is given after the seventh enlistment to private or non-commissioned officer.

1347. ALLOTMENTS (revised by Act of Congress, October, 1917).

The new law does away with future pensions. Allotments may be made to:

1. Family.
2. Bank.

For married men or those with dependents, such as children, parents divorced wives whose support is required by court order, allotments are compulsory, and must not be less than \$15 a month and not more than one-half of his pay. The Company Commander is responsible for finding who comes under this rule. By this arrangement soldiers cannot shirk the support of dependents.

The government will double the amount allotted by each soldier, to a limit of \$37.50 a month. In cases where the soldier allots half of his pay the government will add to the allotment according to the following scale, even though it more than doubles the amount paid by the soldier:

Class A.

Wife, no child, \$15.

Wife, one child, \$25.

Wife, two children, \$32.50.

For each additional child, \$5 more.

No wife living, one child, \$5.

Two children, \$12.50.

Three children, \$20.

Four children, \$30.

For each additional child, \$5.

Class B.

One parent, \$10.

Two parents, \$20.

Each grandchild, brother, sister or additional dependent, \$5.

Nurses can make allotment.

When both A and B classes are in need of allotment from a soldier's pay, and he has allotted half of his pay to Class A, he may allot an additional one-seventh of his pay for the support of Class B dependents, and the government will pay the sums listed above to the Class B dependents, to the limit of \$20 a month. Payments under this act were begun November 1, 1917. In case less than one-half of a soldier's pay is allotted, the Secretary of War may require the allotment to be increased up to one-half of the pay.

COMPENSATION FOR DEATH OR DISABILITY in line of duty. In all cases must be applied for. In case of death, monthly compensation shall be as follows per month:

Widow, \$25.

Widow and 1 child, \$35.

Widow and 2 children, \$47.50.

Each additional child, \$5.

One child alone, \$20.

Two children, \$30.

Three children, \$40.

Each additional child, \$5.

Widowed mother, \$20.

For transportation of body, \$100.

No women can receive compensation from two sources. The government will continue to pay compensation to a dependent wife until her death or remarriage, and to children until they are 18 years old, unless they are insane or helpless, in which case it will continue to pay the compensation during such incapacity.

In case of total disability, compensation will be as follows per month:

Soldier alone, \$30.

With wife, no child, \$45.

With wife, one child, \$55.

With wife, two children, \$65.

Three children or more, \$75.

No wife living, one child, \$40.

No wife living, each additional child, \$10.

Soldier and widowed mother, \$40.

In case of total disability where attendance is needed, \$20 per month will be added to the compensation, unless the soldier is blind, bedridden, or has lost both feet or hands, in which case the compensation will be \$100 per month, with no extra allowance for attendance. In case of partial disability, compensation will be a percentage of the amount paid in case of total disability. These annuities continue only during the life of the person for whom they are first paid.

ADDITIONAL INSURANCE.—Uniform compensation for all ranks can go only to blood relations. In case of death or disability in line of duty, it is paid in monthly instalments for 20 years. Insurance is from \$1,000 to \$10,000 in multiples of \$500. The rate is exceedingly low. Insurance must be applied for within 120 days after entering the service. Premiums are paid monthly, quarterly or yearly from the pay of the insured man. After the war this insurance must be converted within five years into a policy either of straight life insurance, 20-year payment or endowment, maturing at the age of 62. In case of death when there is no blood relationship, the reserve value, according to the American insurance mortality tables, is paid to the estate. None of these payments can be attached for debt, nor legal action started against them except in a United States Court. The maximum lawyer's fee in any such case is \$500.

1361. DEPOSITS of not less than \$5 may be made by an enlisted man (not retired) to any quartermaster. Deposit book, signed by quartermaster and company commander, given to man who makes the deposit. This book is not transferrable.

1363. A LOST DEPOSIT BOOK is not replaced without an affidavit of the soldier, testifying that he has not sold nor assigned it.

1364. PAYMENT made only on final statement. The soldier should be informed of the importance of keeping the deposit book.

1365. WITHDRAWAL OF DEPOSIT when discharged or furloughed to reserve.

1366. INTEREST on sum greater than \$5 is 4 per cent.

1368. FORFEITURE due to desertion, but not by sentence of court martial. Deposits not exempt from liabilities due the United States.

1371. OFFICERS AND MEN lose pay while confined by civil authorities.

1375. FURLOUGHED TO RESERVE or discharged, a soldier is given a final statement in duplicate. This must be presented to be valid.

1378. TRANSPORTATION and subsistence is allowed to the point of enlistment, or for the same distance. Not subject to deduction for debts due the United States.

1380. DISCHARGED SOLDIER under charge of fraudulent enlistment is not entitled to transportation and subsistence.

1383. TRANSFER OF CLAIMS on the government made by an enlisted man are only recognized after discharge or furlough to the reserve. They must be in writing and must be endorsed by a commissioned officer or other responsible person known to the quartermaster.

1437. No one is allowed to accompany sick or wounded from the battle line to the rear except those specifically authorized.

1530. Ammunition lost or used without orders or not in line of duty shall be charged to the soldier using it.

NOTES ON THE LAWS OF WAR.

(From Manual for Commanders of Infantry Platoons, translated from the French at the Army War College, 1917. War Department Document No. 626.)

The laws of war were instituted under the generous error that certain well-organized peoples had entirely.

emerged from barbarism and that they considered themselves bound by the placing of their signatures to international conventions, freely agreed to.

An infinite number of acts minutely and officially investigated have established that our troops and our Nation should never count on the observance of these laws and that the atrocities committed prove to be not only individual violations dishonoring merely the perpetrator, but violations premeditated and ordered in cold blood by the commanders with the moral support of the heads of the enemy nation.

These laws are nevertheless repeated here in order that:

1. The knowledge of how the war should have been conducted may develop in the heart of each man the sentiment of hate (applicable only to foes such as we actually have), that in no case should a chief of platoon tolerate any intercourse between his men and the enemy other than that of the rifle; this duty is explicit and not to be departed from except in the case of the wounded and prisoners incapable of doing harm.

2. That every violator of these laws, taken in the act, shall be the subject of an immediate report with witnesses, then sent to the division headquarters to be tried as to the facts of the case.

The laws of war resulted from the Geneva convention, from the declaration of St. Petersburg (Petrograd), and from the different Hague conventions. All these diplomatic papers were signed by Germany, Austria-Hungary, Turkey and Bulgaria.

The following are the principal articles:

Protect the wounded on the field of battle from pillage and from bad treatment; respect ambulances and evacuation convoys; respect the personnel exclusively concerned with the transportation, treatment and guarding of wounded; do not treat this personnel as prisoners of war if it falls into the hands of the enemy; but return such personnel, as well as material, when its reten-

tion shall be no longer necessary for the care of the wounded prisoners.

Refrain from employing any projectile which weighs less than 400 grams that is either explosive or loaded with incendiary or inflammable material, from all projectiles having for their sole object the spreading of asphyxiating or harmful gases, all expanding bullets or those which will easily flatten out inside the human body, such as jacketed bullets whose jacket does not entirely cover the core or is nickel.

Forbid the use of poisons or of poisoned arms, killing or wounding an enemy who has thrown down his arms and surrendered; declarations that there will be no quarter; refrain from bombarding towns and cities which are not defended, from firing on churches, historical monuments, edifices devoted to the arts, to science, to charity, to sick and wounded and which are marked by a conspicuous signal known to the enemy.

Prisoners should be treated as to rations, housing and clothing the same as troops of the country which has captured them. All their personal belongings, except their arms and military papers, should be left in their possession.

The following should be inviolate: The emissary — that is to say, an individual authorized by a belligerent to enter into talks with the authorities of the other side and coming under a white flag; also his trumpeter, his standard bearer, and his interpreter. He loses his inviolability if it is proven that he has profited by his privilege to provoke or commit treachery.

An undisguised military man can never be treated as a spy.



CHAPTER 8.

Practice Marches.

“Special attention should be paid to the fitting of shoes and the care of the feet.” (i.d.r., 627.)

Short marches from 2 to 4 miles should be made daily and at a uniform rate until the troops become hardened. Particular attention must always be paid to the rate of march — it is imperative for the leading element to keep a uniform rate per hour.

Be careful and see to it that your troops march on the right-hand side of the road, and during halts, no one, not even officers, must be permitted on the left. Keep closed up, and during the last mile of your march have your company sing some real snappy song, and they will come in in jubilant spirits. Keep the muzzles of your rifles always elevated on the march so that men marching in rear wont be bothered.

On the march the first halt is for 15 minutes taken after 45 minutes of marching. The men should be taught to use this time to adjust their clothing and equipment, and answer the calls of nature. Do not halt where there are houses, etc., on this first halt, as a great many men want to relieve themselves.

The succeeding halts are for 10 minutes after 50 minutes of marching — except of course during a forced march — when you would march for a longer period. During rainy or very hot weather the halts should be made oftener.

Do not have any straggling, remember if a man falls out he must have a certificate signed by an officer stating the cause. Have one officer march in rear of the company. Be careful about the use of water. Have your men take a good drink early in the morning just after reveille, and on the march use their canteen sparingly. One canteen of water must last one man one day. Do not allow men to drink until after the second halt.

On reaching camp the kitchens are put up, latrines are dug, and tents are pitched. When everything has been tended to each man should give his feet a good salt water bath. Put them in the water and let them remain there for 2 minutes. Do not dry them by rubbing, but sponge them — this will harden the feet. This should be done for the first three days, after which it can be dispensed with. A change of socks daily should be made, take one pair of socks from the pack, and wash out the dirty pair.

Try to avoid night marching.

The leading company in each regiment regulates the rate of march.

“The marching efficiency of an organization is judged by the amount of straggling and elongation and the condition of the men at the end of the march.” (i.d.r., 632.)

Remember a sanitary squad should be detailed daily to police the immediate vicinity after each halt.

Field Work.

Field work will be classified under the following heads: Orders, Deployment, Fire, Attack, Defense, Leadership, Communications, Night Operations, Patrols, Advance Guards, Rear Guards, Flank Guards, Camp, March Outpost, and Outpost.

(a) AN ORDER is the will of the commander expressed verbally or in writing to his subordinates. It should be clear, concise and to the point. A field order should be given as follows:

1. Information of the enemy and supporting troops.
2. General plan of the commander.
3. Dispositions of the troops.
4. Instructions for the trains.
5. Place where messages are to be sent.

(b) DO NOT DEPLOY too early. It is very fatiguing, and has a tendency to disorganize the skirmish line.

The major designates the companies to be on the firing line, and those to remain in support. The distance between the firing line and support is from 50 to 500 yards. The support should be as close as possible under cover.

(c) FIRE DIRECTION is the function of the company commander. He gives each platoon its sector or objective, determines the range, target, indicates the class of fire, and the time to open fire. Fire control is given to platoon commanders. The platoon is the fire unit. "Fire control implies the ability to stop firing, change the sight setting and target, and resume a well directed fire. The best troops are those that submit longest to fire control." Fire discipline is the function of the individual soldier. "It implies that in a firing line without leaders, each man retains his presence of mind and directs effective fire upon the target."

(d) THE TROOPS march in column of squads until under the observation of the enemy. Platoon columns are used in crossing ground where there is cover. Squad columns are used across the artillery zone. At approximately 800 yards a skirmish line is formed. Thin lines may then be used to advance to the attack. Remember the Major has assigned each company in the firing line an objective. Be sure to watch out for flank protection. If the Major has forgotten to have combat patrols on the exposed flank or flanks, it is up to the flank company to send out a combat patrol. This patrol should be slightly in advance of the front line, and off to the right or left. The advance is made by a fraction rushing forward. These rushes are from 20 to 80 yards. When a rush is made the remaining troops fire faster. The firing line should not be reinforced by less than a platoon. The Major determines when to fix bayonets. The front rank men fix bayonets first, the rear rank men fire faster, then the rear rank men fix bayonets while the front rank fire faster. A battalion is the smallest unit in the firing line to

inaugurate a charge. Remember the battalion is the attack unit.

In changing sight setting follow same plan as fixing bayonet, *i. e.*, each front rank first, the rear rank man firing faster, etc.

(e) DEFENSE.—In defense the line is usually stronger and the support weaker than in the attack. Do not give up your ground unless you have written orders from the High Command. Watch out for flank protection by combat patrols.

(f) LEADERSHIP.—A good leader should possess self reliance, initiative, aggressiveness, superior knowledge, and have a conception of teamwork. Make your work a game in which each man has a part to play. Reward merit and give the disagreeable things to be done to the “knockers.” A leader must know his men. Never give them a job to do that you couldn’t do yourself. Train yourself to estimate the situation quickly and calmly. Have your men well disciplined, well drilled, well equipped, and well dressed. It might be called unmilitary by some of the sterner characters in our service, but we believe by occasionally drawing comparisons to something real amusing—a good joke—you show your men that the “old Man” is really made of human stuff. Be sympathetic, and it has been shown by experience that, for some slight breach of discipline a “little talk” in the orderly room does the most good, and is the best form of punishment. Do your work cheerfully, and your men will do likewise. Keep yourself abreast of the times in all matters military—remember your men look to you in time of action and excitement and you must be ready to deliver the goods. Work out and plan your orders, etc., simply. Morale is the greatest asset an organization can have. Keep all your troubles and have the men keep theirs within the company. Have *esprit de corps*. The real successful leader knows and plays the game.

(g) COMMUNICATIONS.—Communication is maintained by wireless, telegraph, telephone, signals, runners, carrier pigeons, aeroplanes, motor cars, patrols, and connecting files. Each unit usually maintains communication with the next higher command, and with similar commands on the flanks.

(h) NIGHT OPERATIONS.—They are used to minimize losses from hostile fire, to escape observation, and to gain time. The ground to be traversed at night should be carefully looked over in daylight. Some distinctive badge should be worn by our troops. The bayonet is chiefly used at night. Avoid firing. The enemy should be surprised. Place obstacles in front of your own lines at night. Usually 50 yards is the maximum range to fire at night.

(i) PATROLS.—“A commander may be excused for being defeated, but never for being surprised.”

PATROLS.

Commander selects leader, strength, gives it a mission, when to report back, and where to send messages. He gives it a number if more than one patrol is sent out, information of the enemy, and location of any friendly patrols that may be or have been sent out. Patrol leader is then allowed to ask questions.

Patrol Leader.—He should have a compass, watch, pencil, note-book, knife, and a map of the country. He should then do the following:

1. Assemble his men.
2. Inspect them.
 - a. To see if they are fit for this duty.
 - b. That they have no valuable maps or papers, that their equipment does not rattle or shine.
 - c. Rations and water.
3. He repeats the instruction that he has received.
4. He explains any signals that are to be used.

5. Designates a rallying point in case they are scattered.

6. Details a second in command.

7. Takes a formation that will favor the escape of at least one man.

Conduct of the Patrol.— 1. Move cautiously but not timidly.

2. Do not flinch or show consciousness of it in case you become suddenly aware that you are under the observation of the enemy. Not knowing that you are aware of his presence he will let you come on, and suddenly, when you see cover, make a dash for it and escape.

3. Do not get lost.

4. Do not allow yourself to think of the enemy as being in one direction only.

5. In entering or passing through woods take an extended skirmish line formation.

6. In passing any short defile bridge or ford, send one man ahead.

7. If you suspect the presence of the enemy under certain cover, a good way to find out is to let one man approach within a reasonable distance and then, acting as though he had been discovered, turn and run. This will generally draw his fire.

8. Keep quiet. Forbid unnecessary talking.

9. From time to time select suitable rallying points in case you become separated.

10. Remember that you do not fight unless in self defense.

Report.— 1. Do not report the presence of small patrols unless you have been ordered to do so. Locate the main body or a large command.

2. Determine his strength, kind of troops and movements.

3. Remember the indispensable qualities of a report are: accuracy as to facts, simplicity, clearness, legibility and correct spelling. Surmises must not be given as facts. Separate what you know and what has been told

you. A report should not be expressed carelessly in ten words when it could be clearly stated in twenty. Send a sketch if practicable.

4. Do not send a verbal message.

5. Address it to C. O. Support or C. O. Advance Guard, etc., not to the commander of a certain body of troops. Give date, place and time.

6. Remember to state what you intend to do.

7. In hostile country send two messages by different routes. In friendly country one will suffice.

8. When the capture of your message is likely, give messenger a false one that will be easily found and conceal the true message carefully.

Return.—1. Do not return over the same route as you avoid ambuscade and widen your field of reconnaissance.

2. Report any special features of military value that you have seen to your C. O.

3. Compliment your men.

(j) *Advance Guard.*—"An advance guard is a detachment of the main body which precedes it and covers it on the march" (i.d.r. 639). The commander of troops designates the advance guard, the distance between it and the main body, and also designates a commander. The advance guard commander if he has more than a battalion designates the reserve, support, distance between them. If the advance guard is a battalion or less it would have no reserve, and in that case the advance guard commander would designate the support, advance party, and the distance between them. In the former case the support commander would designate the advance party, and the distance between the support and the advance party. In both cases the advance party commander designates the point, and the distance between the point and the advance party. Usually it is the duty of the advance party to send out flank patrols. The strength varies from $1/20$ to $1/3$ of the main body.

Remember "the formation of the advance guard must be such that the enemy will first be met by a patrol, then in turn by one or more larger detachments, each capable of holding the enemy until the next in rear has time to deploy before coming under effective fire." The advance guard must be aggressive. Do not put up with a cautious point. Have a double connecting file, and if possible every 100 yards. "Each element of the column sends the necessary connecting files to its front." On the road in order are: point—advance party—support—reserve (if there is one)—main body. Have the point precede the advance party, all the remaining elements follow the one ahead. This has been found by experience to be the best method of getting "there."

(k) *Rear Guards*.—"A rear guard is a detachment detached to protect the main body from attack in the rear." "The general formation is that of the advance guard reversed." i. e. rear point, rear party, support, and main body. "In retreat a column is preceded by a body of troops designated 'leading troops,' whose principle duty is to clear the road of obstacles and to facilitate the withdrawal of the command."

(l) *Flank Guards*.—As their name imply protect the flanks. They should be in constant communication with the column. Their formation usually conforms to that of patrols.

(m) *Camps*.—The four principal factors to be considered in the selection of the camp site are: near a good road or roads, have good drainage, plenty of room to accommodate your troops, and have a good water supply. Immediately after camp is made sinks are dug for the disposal of excreta. One should be dug for each company on the opposite flank from the kitchen for the disposal of human excreta, and one near the kitchen for the disposal of wastes, etc., that cannot be burned around the kitchen.

(n) *March Outpost*.—A march outpost is usually an advance guard halted, with observers in each unit on

the alert. A cossack post might be established on a good near by observation point. The march outpost is the protection furnished the main body at short halts, or on making camp before the outpost is established.

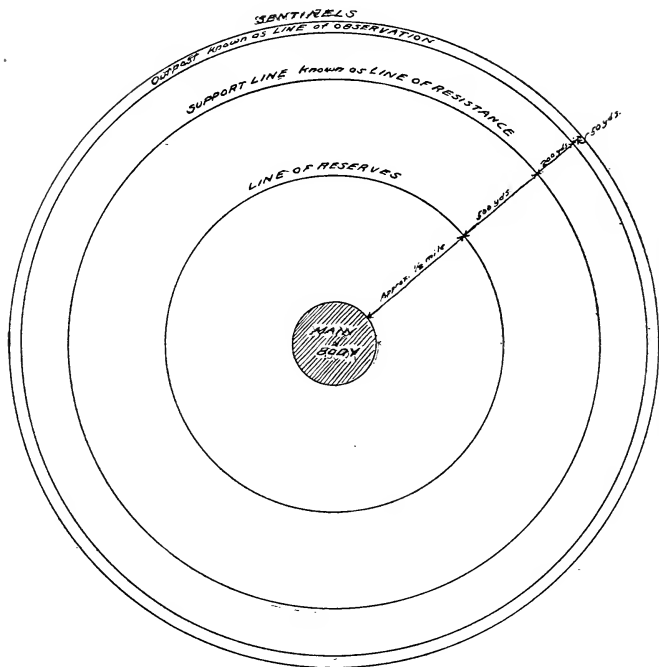
(o) *Outpost*.—The outpost may be best illustrated by circles:

Each support is numbered from right to left. Each outguard in each support is numbered from right to left. Each sentinel post in each outguard is numbered from right to left. Outguards are divided into three classes, cossack posts, sentry squads and pickets. A cossack post consists of 4 men, 1 posted in observation near the posts of the remaining three.

A sentry squad consists of one squad, posts a double sentinel post in observation near the post of the squad. A picket consists of two or more squads not exceeding half a company. It furnishes cossack posts, sentry squads, sentinel posts, and patrols. It is usually placed at the more important points of the outguard line, as a road fork, etc. The post furnished by pickets may be as far as 100 yards away. There should be also a sentinel post near the picket in observation. If the outguard consists of two or more companies there is a reserve. The reserve is held at some suitable point where it can readily support the line. The reserve maintains connection with the main body and the support. The support occupies the line to be held. This line should be entrenched. The support maintains communication with its outguards and with each support on its flanks. It also sends out the necessary reconnoitering patrols. The outguards furnish sentinel posts and maintain communication with them, and with the outguards on each flank. It is the duty of the support commander to inspect his line and make such changes in the outguards as he deems necessary, then to report to the outpost commander with a sketch if practicable of his line when his dispositions are completed. The outpost commander should inspect the line, order such

Plate
12

DIAGRAM OF OUTPOST LINE



changes as he deems necessary, and report with a sketch of the outpost line to the commander of troops when his outpost has taken up its position. "The support commander must practice the greatest economy on men consistent with the requirements of practical security." Instead of using outguards along the whole front, part of it may be covered by patrols.

Outline of Field Service Regulations.

LAND FORCES OF U. S.

Regular Army.

Organized Land Militia.

Volunteer forces.

How Grouped:

Mobile Army.

Coast Artillery.

Mobile Army:

For offensive operations against enemy and so requires maximum degree of mobility.

Basis of organization the division, a self-contained unit composed of all necessary arms and services.

Coast Artillery:

(1) Permanent fortifications for defense against naval attack.

(2) Semi-permanent fortifications for protection of permanent from raiders.

(3) Organization of mobile troops to prevent landing of enemy.

MILITARY INFORMATION.

Essential:

(1) To enable War Department to estimate equipment and size of force necessary.

(2) To enable commander properly to estimate the situation in the field of operations.

TRANSMISSION OF INFORMATION.

Wire, Signaling, Radio and Messenger:

Message.— Concise, written information sent by messenger or wire.

Source always given.—“ Heard ” separated from “ seen.”

Report.— Formal account of some enterprise.

War Diary.— Record of events kept in campaigns.

Maps.

Reconnaissance:

The work of individuals or units in gathering information.

To keep contact with the enemy — to be acquainted with the terrain; to protect flanks and rear and guard against surprise.

Reconnaissance begins on entering theater of operations and lasts through campaign.

Effected by patrols and air craft.

Indications of enemy:

Tracks on road.

Abandoned camps and clothing.

Infantry, thick, low cloud of dust.

Cavalry, high, thin cloud of dust.

Artillery and wagons, broken cloud.

Determination of Enemy Forces:

Timing past a given point.

Cavalry (walk), 110 per minute.

Cavalry (trot), 200 per minute.

Infantry, 175 per minute.

Artillery and wagons, 5 per minute.

Security:

Those measures taken to protect a command from enemy observation, annoyance and surprise.

Obtained by covering the front with detachments.

March.— Advance, flank and rear guards.

Camp.— Outposts.

March and camp detachments.—To give warning and resist attack until such time as detachment in rear can deploy.

Advance Guard:

Detachment from main body to cover its advance.

Against surprise for information.

Push back small bodies.

Check enemy's advance until deployment in rear.

Seize good position and locate enemy lines.

Remove obstacles.

Strength 1-20 to 1-3 of entire command.

Divisions of Advance Guard:

Cavalry point.

Infantry point.

Advance party.

Support.

Reserve.

Leading Troops:

A detachment protecting the head of a column in retreat.

Rear Guard:

Detachments protecting the rear of a retreating column.

Formation like that of advance guard.

Flank Patrols:

Detachments for protecting the flanks of marching column.

March Outpost:

Detachments for protection of column halted on march.

Formation, that of the marching protection.

Outpost:

The detachments forming the protection for a force in camp or bivouac.

Divisions of Outpost:

Reserve.

Line of supports.

Line of outguards.

Pickets.

Sentinel Posts:

Sentry squads. Cossack posts. Sentinels.

Detached posts (from support).

Hours of Special Danger:

Evening and dawn; thus good times to relieve outposts.

Examining Post:

Intelligence and a place where prisoners, etc., are brought in.

Orders:

The expression of the will of a commander, either written or verbal.

Letters of instruction — plans of the superior leaders.

Field Orders:

Regulate tactical and strategical actions of troops.

General Orders Include:

- (1) All necessary detailed instructions.
- (2) All standing instructions (avoid repetition).
- (3) Proceedings of general and special courts-martial.

Special Orders:

Relate to assignment and movement of individuals, not necessary to be communicated to the whole command.

Bearers of verbal orders must *repeat*.

Field Orders:

- (1) Heading.—Title, place, date, hour and number.
- (2) Distribution of troops.—Division of command.
- (3) Body:
 - (a) Information of enemy and supporting troops.
 - (b) General plan of commander.
 - (c) Detailed tactical dispositions to carry out general plan.

Field Orders — (*Continued*):

(3) Body — (*Continued*):

(d) Instructions for trains — also the positions of ammunition and dressing stations.

(4) Ending.— Authentication and method of sending.

Marches and Convoys:

Successful march.—That which places troops at destination on time, and in best possible condition.

Rates of March:

Infantry.— 2 to $2\frac{1}{2}$ miles per hour.

Cavalry.— 4 miles (walk), 8 miles (trot), 12 miles (gallop).

Artillery.— (Same.)

Average Marches:

Infantry.— 15-20 miles per day.

Cavalry.— 25 miles per day.

Artillery.— 15-20 miles per day.

Load of pack mules equals 250 pounds.

March Orders, State:

(1) Object of march.

(2) Distribution of troops.

(3) Order of march of main body.

(4) Manner of forming the column.

Halts:

First hour, 15 minutes' rest. Each successive hour, a 10-minute rest.

Weather conditions create exceptions to above rule.

Marches in Peace:

(1) Changing station.

(2) Practice.

In War:

(1) Concentration.

(2) In presence of enemy.

(3) Forced marches.

(4) Night marches.

Convoys (on Land):

Those trains by which supplies are forwarded to an army from depots, etc., in the rear — also trains bringing supplies collected by requisition.

Security Furnished by an Escort:

- (1) Advance guard.
- (2) Main body.
- (3) Flank guard when necessary.
- (4) Rear guard.

Favorable places for attacking convoys:

Through woods defile.

Over hedges.

Sharp bends.

Ascending or descending slopes.

Farming corral, watering.

Whenever conditions are such that escort cannot quickly prepare for defense.

Conducting Prisoners:

10 foot soldiers to every 100 prisoners.

Infantry:

The principal arm, charged with the main field work. Its role is the role of the entire force and its success is the success of the whole force.

Artillery:

The close supporting arm of the infantry.

Its targets are those most dangerous in the eyes of the infantry.

Cavalry:

Reconnaissance — supports the other arms and is valuable in pursuit.

Combat:

Offensive.

Defensive.

(a) Temporary.

(b) Passive defense.

Combat Principles:

Fire superiority.

Unity of command.

Simple and direct plans and methods.

All troops necessary to mission must be assigned at beginning.

Detachments justifiable only when they can contribute directly to success of main battle.

Some reserves must be kept.

Flank protection and reconnaissance.

Fire Superiority:

Must be gained early and maintained.

Frontage of Units:

Depth in formation for combat rather than extension of line.

Reserves:

Fresh troops must be on hand to

- (1) Give fire line impetus.
- (2) To penetrate enemy lines.
- (3) To fill gaps and help reorganization.
- (4) To meet counter attacks.

Plan of Action:

Mission of army is to win battle.

Offensive action must be the rule.

When enemy is near every available means must be taken to gain information, in order to prepare for deployment.

Offensive Combat:

The attack develops into 2 parts.

- (1) Assaulting hostile position at selected points.
- (2) Threaten or assault all other parts of enemy line in order to hold enemy from reinforcing operations.

Enveloping Attack:

Advantage of converging fire upon position.

Holding Attack:

An attack for holding enemy in one place, while assaults made at another point.

Assaults:

The local concentrated offensive.

Pursuit:

Only by energetic pursuit can the full fruit of victory be gleaned. Its purpose is to cause the greatest loss in personnel and morale possible cavalry and artillery active.

Defensive Combat:

Passive defense — to gain time, or to hold certain points pending results in other parts of the line.

Defense seeking a favorable decision — a parrying of blows while seeking a favorable opening.

Counter attack the crisis of this form.

Counter attack — made by launching reserves at the flank, while the enemy is fully committed to the attack.

Defensive Positions:

Requisites:

Clear field of fire.

Flanks naturally secure.

Extent of ground suitable to strength of force.

Effective corps for reserves.

Good lines of retreat.

Good communication.

Position in Readiness:

A position intended to resist the advance of an enemy in the immediate vicinity information of whose movements is not full enough to warrant definite action.

Withdrawal From Action:

Troops most readily disengaged from the enemy should be withdrawn first.

Demands highest order of skill in troop leadership.

Covering Positions — those positions chosen to cover the retreating force.

Retreat — a step by step opposition to the enemy's advance on a prearranged plan.

Delaying actions:

1. Advance delayed as long as possible, consistent with safe withdrawal.
2. Delayers must hold position.

Night Combat:

Offensive advisable.

1. Where fire superiority is impossible by day.
2. To avoid heavy losses by advance to assaulting position by day.
3. To capture posts or patrols.
4. To surprise for moral effect.

Defensive:

Obstacles in front of position.

Trenches heavily manned and supports drawn close.

Shelter:

Troops under canvas — in camp.

Troops on ground without canvas — bivouac.

Troops in huts or villages — cantonment.

Tactical considerations are paramount in the selection of camp sites in the theater of operations.

Selection of Camp Site:

1. Suitably large to accommodate command.
2. Water supply sufficient and accessible.
3. Good roads to and in camp.
4. Wood and grass forage near at hand.
5. Sandy subsoil for drainage.
6. Hot weather shade — cold protection.

To maintain the efficiency of a command, troops must have adequate shelter.

Sanitary Considerations Around Camp:

Latrines on opposite side of camp from kitchens.

Short camps, straddle trenches.

Long camps, trenches 2 by 6 by 12 with seats.

Have latrines screened.

Burn the trenches out daily and keep covered.

Wash boxes and paint with tar.

QUESTIONS AND ANSWERS ON F.S.R.

1. How are the land forces of the U. S. organized?

Ans.—The *Mobile Army* consisting of Regular Army, organized land militia when called to Federal service, drafted army, volunteers and the field artillery and the *Coast Artillery*.

Basis of organization is the Division composed of all arms and self-sufficient. Several divisions may be grouped into a field army, to which are attached field army troops. These are organized into a brigade for purpose of supply and administration when necessary through numbers.

Coast Artillery is charged with the care and use of land and coast fortifications, including submarine mines and torpedo defenses.

2. What is the object of collecting military information?

Ans.—To enable the War Department to decide upon the size of army or expedition, the proportions of different arms, the character of clothing, equipment, etc., needed for any operation.

Information collected by the Gen. Staff in time of peace should include geography, physical resources, and military strength of the various nations.

3. Define reconnaissance.

Ans.—Reconnaissance is used to designate the work of troops or individuals when gathering information in the field.

It is necessary during combat for the tactical use of troops.

It is carried on by: (a) aero squadron; (b) independent cavalry; (c) divisional cavalry; (d) by infantry as reconnoitering patrols.

4. What are some indications of the presence of the enemy?

Ans.—Clothing or material on roads or in abandoned camps.

A thick, low cloud of dust indicates infantry.

A high, thin cloud cavalry.

A broken cloud artillery or wagon trains.

How would you determine from these indications what the number and organization of the enemy might be?

Ans.— Estimate strength, by length of time it takes to pass a given point. Assuming that infantry in column of squads occupies half a yard per man, cavalry in column of fours 1 yard per trooper, and artillery in single column 20 yards per gun or caisson, a given point would be passed in one minute by about: 175 infantry, 110 cavalry at walk, 200 cavalry at trot, 5 guns or caissons.

5. Suppose on patrol and safely concealed for sighting the enemy at no great distance, by what rough method would you ascertain the approximate strength of the force assuming it to be composed of infantry, cavalry and artillery?

See answer No. 4.

6. What is the composition and arrangement of the advance guard?

Ans.— All arms of the service. In open country much cavalry and field artillery, the latter seldom assigned to command smaller than a brigade. Also machine guns, ambulance company if the force is large and engineers for purpose of removing obstacles to the march.

Large command; advance cavalry, support, reserve.

Small command; point, advance party, support, reserve.

Strength should be $1/20$ to $1/3$, depending on size of command and character of terrain.

Advance guard increases in size proportionately with size of command. Why?

7. Define: (a) Outguard; they constitute small detachments farthest to the front and nearest to the enemy.

(b) Cossack post; observation group at indicated point consisting of four men, post single sentinel.

(c) Picket; small command up to platoon placed in line of outguards at more important points such as road forks.

8. What is an order?

Ans.—Orders are used by commanders of divisions and separate brigades for regulating the movement and supply of field trains, fixing position of distributing points for rations and forage, in short, have to do with supplies of all kinds, especially food.

Form:

The heading.

The distribution of troops (in certain orders).

The body.

The ending.

The Body contains:

1. Information about the enemy and our supporting troops.
2. General plan of the commander.
3. Disposition of the troops.
4. Instructions for the trains.
5. Where the commander may be found or messages are to be sent.

9. During an advance what is the general order of advance of a column?

Ans.—Cavalry and horse artillery.

Infantry and light artillery.

Engineering and signal troops.

Trains.

10. What is the average march per day of various arms?

Ans.—Infantry, 15 miles per day.

Infantry in large bodies, 12 miles per day.

Cavalry, 25 miles per day.

Field artillery, 15 to 20 miles per day.

Horse artillery, same as cavalry, to which it may be attached.

Forced marches are from 28 to 30 miles for infantry.

11. How is the escort distributed in guarded convoys?

Ans.—Advance guard, with advance cavalry 3 to 5 miles ahead.

Main body may be opposite most important point of the train, usually opposite its center.

Section of infantry at head and tail of train.

Flank guard — if necessary.

Rear guard — $1/6$ of escort.

What places are most favorable for attacking convoy?

When passing through woods, defile, or over bridge, when going around sharp bends in the road; when convoy is forming corral.

12. Discuss uses of the various arms in combat.

Ans.—Infantry: The most important arm, charged with the main work of the battle.

Artillery: Supporting arm of infantry. Its target is the opposing arm most dangerous to the infantry.

Cavalry: Reconnaissance before combat, support of other arms during combat.

13. What is the difference between the attack and the assault?

Ans.—In combat where the force is as large or larger than a division, a simultaneous advance against the entire hostile front is out of the question. Attack is made up of a number of local combats. Some where enemy is engaged with view to driving him out. This is called the assault. Other parts of attack with fewer troops simply to keep the enemy from coming to the support of those troops of the assaulted lines. The entire advance against the enemy is the attack.

After the firing lines have advanced some distance the weak and the strong points of the enemy's lines are disclosed. The weak points of course are selected.

14. Discuss the manner in which a pursuit should be carried out?

Ans.— If enemy commences withdrawal before front lines have given way, troops in action push forward until enemy in their front are driven away. Cavalry and horse artillery are thrown against flanks of retreating enemy, or on their front. Purpose to further disorganize the enemy, beat him to bridges, defiles, etc. In meantime reserve is sent into the pursuit, while troops engaged are assembling to constitute a new reserve. General scheme is to keep in continuous contact with enemy, giving him no chance to reorganize. Boldness necessary.

15. What are the different kinds of defense, and what is the purpose of each?

Ans.— (a) Passive; to retain position for specified time with or without combat, or to prevent enemy from carrying position.

(b) Defense seeking favorable decision; troops forced temporarily to assume the defensive, with intention of assuming the offensive at first favorable opportunity.

16. What is the purpose of the counter attack?

Ans.— To win victory, stave off defeat or prevent lines from being entered. It may be launched either at the enemy's strong or weak points depending on conditions. If enemy are beaten off and disorganized at some point, it may be good opportunity to follow up the advantage by counter attack. Also at other points where weakness develops. Counter attack is made at strength of enemy to prevent him from penetrating the defensive position.

17. How should advance position be organized and held?

Ans.— Force should not be so weak that it can be driven back to main body before it accomplishes its purpose, nor so strong that it will hold out too long, thereby committing the entire force to action in advance line instead of the line selected.

Trenches. What is position in readiness?

Troops placed in readiness for action where it is intended to resist the advance of enemy in immediate vicinity, but knowledge of his movements not yet sufficiently definite to decide upon plan of action. Preliminary to taking up offensive, or more usually to taking up and occupying defensive position. Hasten deployment when time comes.

18. If it becomes necessary to withdraw troops from action state steps necessary to insure the safety of troops during the withdrawal and retreat.

Ans.—Last reserves should be used. If none, troops least pressed used to cover withdrawal. Cavalry and artillery used unsparingly. Depends on the terrain. First covering position well to the rear so as not to suffer demoralization. On flanks of line of retreat. There should also be facilities to withdraw the occupying force. Firing line made as strong as possible, minimum of reserves held. Use M. G. Perhaps successive covering points necessary further to rear before advance of enemy can be checked. When a few miles to the rear, or far enough to free troops from all contact with the enemy, reorganize. Step-by-step opposition useless. Number of covering positions should be reduced to the minimum.

Retreat; trains at once put into march. Other forces at once put into order of march. All roads used, separate roads for divisions.

Effective rear guard from troops whose strength and morale is least impaired.

Divisional cavalry and as much artillery as can effectively be used. Use artillery at long range to keep the enemy deployed, destroy bridges, etc.



CHAPTER 9.

Feeding Men.

IN CAMP.—You will usually have plenty of food but continual inspecting is necessary to have it properly cared for, prepared and served. The kitchen must be kept clean; company commanders inspect daily and insist on the following:

1. Have cooks and enlisted men come to attention at the command of the first man who sees you approach.

2. Have all refrigerators opened, and put your head in far enough to detect any bad odors.

3. Check the bill of fare and see that food not consumed one day is utilized later—waste bread for bread pudding, for example.

4. See that doors close properly, that windows are screened and roof is tight—allow no flies.

5. Have floors, tables and refrigerators scrubbed daily.

6. Have the ground around the mess shack raked and thoroughly policed. Towels hung out to dry must be so hung as not to fall to the ground. Raked ground does not allow flies to build undisturbed.

7. Taste the coffee and look in the coffee bins.

8. Inspect pans, knives, meat grinder (have latter taken apart for you occasionally).

9. See that the mess sergeant looks after the incinerator properly; that he makes the cooks use what he tells them to. Cooks should not be allowed to help themselves to things; the mess sergeant should weigh out or set out just what is to be used each day.

10. Have the food served hot and in individual portions as far as possible; see that the food is not put on the table too soon.

11. During each month talk with an old soldier, a raw recruit and a non-commissioned officer about the mess to see what the men think of it.

ON THE MARCH.—(1. i.d.r., 669-673.)

If portable kitchens accompany troops, the men should fall in in single file and be helped to food as they pass by in companies.

FOR INDIVIDUAL COOKING.—Rations issued might be: 1 carton of hard-tack, 1 ration of bacon, 1 potato, 2 tablespoons of rice, 1 heaping tablespoon of coffee, sugar.

Fires for individual cooking are best made out of small dried twigs to produce a hot fire large enough for a group of four men.

There are two methods of cooking with the issue mess-kit.

First Method: Each man cooking for himself. As there are but two cooking utensils, the tin cup and the frying pan, the cooking must be systematized in order to cook four articles on the two utensils. To do this, the rice is first cooked in the tin cup filling the tin cup one-third full of water throwing in the rice. The water is brought to a boil and boiled until the individual grains of rice are soft through. The tin cup is then removed from the fire, the water poured off, and the cup covered with the lid of the mess tin, the rice being allowed to steam. In the meantime, the bacon should be fried in the frying pan, the grease being saved. When the rice is well steamed, it is turned out in the lid of the meat can, then the bacon placed on top of it. The tin cup is washed out and the man is then ready to fry his potato and boil his coffee. The cup is filled two-thirds full of water and the coffee placed in it and boiled until the desired strength is attained. To prevent the coffee from boiling over, a canteen of water should be handy and water thrown in whenever the coffee begins to boil over. When the coffee is strong enough, the addition of cold water will settle the grounds. In the meantime, cut the potatoes very thin and fry them in the bacon grease and the meal is ready: hard-tack, potatoes, rice, bacon and coffee.

Second Method: Squads of four may specialize; one man to collect the frying pans and fry all the bacon, another the potatoes, another the rice and coffee, and the other for collection of wood. Either method may be followed.

Mess-kits should be cleaned immediately after using, sand being used for scouring. Mess-kits must be cleaned thoroughly.

IN THE TRENCHES.— Usually rations and stores will be carried up to the trenches by the supports and the reserves. If this is not possible and it becomes necessary that men from the front line trenches be employed, not more than 10 per cent of the men in the firing line are to be away from the trenches at the same time.

RATIONS AND COOKING:

(a) Ration parties from the support and reserve trenches will be made up in complete units, *i. e.*, platoons or companies.

(b) The company mess sergeant will accompany the ration parties for his company and will report his arrival to the company commander.

(c) Great care is to be taken that ration and carrying parties make as little noise as possible.

(d) Cooking if possible will be done behind the front line trenches, and should be concentrated by sections or companies. Steps must be taken to insure that as little smoke as possible is made by the cook's fires.

(e) Waste in any form will be discouraged.

(f) Arrangements should be made to insure that soup or some hot drink be available for the men between midnight and 7 a. m.

Each company commander must see that timely requisitions for rations are made and to have no delays at meal times. Food should be brought up in tin boilers about the size of wash boilers so that two men can handle one of them easily without a relief. In front line, men send mess kit relayed from hand to hand to these boilers at stations in each platoon or section and

they are relayed back. Sometimes men in the front line are relieved for a few minutes. Always carry 24 hours rations.

Camping and Camp Sanitation.

GENERAL PRINCIPLES:

Great care must be exercised in selecting a camp site, but it must never be forgotten that the tactical situation is of paramount importance.

The following principles govern the selection:

- (1) Sufficient supply of pure water.
- (2) Good roads, but not too near a main highway on account of dust and noise.
- (3) Wood and forage must be obtainable.

The ground should:

- (1) Give ample room without crowding.
- (2) Have porous soil.
- (3) Have high elevation to make site dry.

Avoid:

- (1) Marshy ground and mosquitoes.
- (2) Woods or dense vegetation.
- (3) Ravines or depressions in terrain or dry stream beds subject to sudden freshets.

Water must be obtainable:

- (1) Arrange immediately where to obtain
 - (a) Drinking and cooking water.
 - (b) Water for animals.
 - (c) Water for bathing and washing.

In the case of running water, the point furthest up-stream shall be guarded for drinking and cooking water. Bathing shall be done at a point furthest down-stream.

Successful military camping depends upon three (3) things:

- (1) Discipline.
- (2) Cooking.
- (3) Sanitation.

Discipline means control; it means order. Nowhere are these more essential. Confusion is loss of control, loss of time, and loss of respect by the men.

Upon arrival at a favorable camp site get the men off their feet. Do not wait around. As C. O. have your decisions made and the work organized, so that each squad will be under a leader. Keep squads together, allowing none to stray off until the work is done, then let everyone rest except the sentinels.

Do not omit to post sentinels over the water supply and at important points, even though you have not decided upon the exact location of camp.

Organize the work by platoons or squads and rotate, if camp is to be made every few days.

Discipline in camp means more than order and dispatch, however, men must understand that they are under discipline when off duty — that they cannot disregard sanitary measures, eat promiscuously, destroy property, vegetation, or timber and must police the grounds at all times. Papers, cigarette butts, and newspapers, should never be allowed on the ground near camp. Eatables should never be kept in tents to draw vermin. Where possible, in dry weather, the company street should be wet down to keep the dust out of the tents. Have men ditch around tents immediately upon making camp. Though it may seem somewhat of a hardship, a sudden down pour of rain, will recompense them for this labor many times over. In ditching the tents, completely circle them, for if this is not done a great deal of rain will come in the front of the tent.

Food means everything to a soldier. The camp cooking is a barometer of the organized efficiency and of the enlisted men's attitude. Nothing else can do so much to help or hinder.

The Company Commander should realize the controlling power exercised by the company cook and keep the matter in his own hands. He should accept no excuse for burnt or dirty food.

If officers mess with their companies they will appreciate the attitude of the men and be able to judge the real situation. Officers will be well repaid for doing this, as it gives them an idea of the food that is being served their men.

In the mechanical details of preparing food, the fire is of first importance. A quick method of cooking is by laying a pair of large green logs on the surface of the ground just wide enough to place the pots between them, so that the bottom of the pots will be resting upon them. Build a fire between these logs, making sure to place the logs parallel to the direction of the wind.

A pit may be dug, with a sloping bottom, and across this may be placed the pots, and if iron rails are available, the utensils may be placed on these. For longer stays this pit may be lined with stone. Stones retain the heat and less wood is required. Four trenches radiating from a central chimney will give one flue whatever may be the direction of the wind. (For more specific data on the subject of fires and camp cooking, see *Manual for Army Cooks — U.S.A.* — also notes in *i.d.r.*, pp. 154-155.)

Make a rule never to allow food to remain in tin cans after opening them. Remember to place kitchen near available water supply and furthest from latrines, horse picket lines, or dumps of any kind.

Sanitation comes last in the thoughts of the enlisted man, but it is no less important for that.

The first requisite is cleanliness. Food receptacles must be scoured and covers and cracks in tin ware scraped as well as scalding the tins themselves. Have boiling hot water in tanks (galvanized iron ash cans are good) for men to wash mess kits in after meals. One can should contain soapy water so as to cut the grease from the dishes, and the second tank should contain clean, boiling water for scalding the kits. Scraps of food should be scraped from the mess tins before immersing them in water, otherwise washing water be-

comes filled with small particles of food. Wiping cloths will greatly add to the convenience of the men and takes but a short time to make them clean and fit for use again.

Care must be exercised over three kinds of waste :

- (1) Garbage.
- (2) Kitchen slops.
- (3) Excreta.

Garbage can be burned in the kitchen fires. It should never stand exposed to the air, but should be tightly covered in iron cans, and should be disposed of every twenty-four hours. Kitchen help have an aversion to prompt disposal of garbage and need watching. Fly traps should be made of muslin and used freely about the kitchen.

Kitchen slops, fats, greasy water, etc., must be drained into covered pits, never allowing them to be tossed on the ground around the cook tent. A hole dug and partially filled with stones with a barrel placed upside down on them, makes a very good receptacle for kitchen slops. The barrel should be placed so that the inverted top will be a little way beneath the surface of the ground. A hole should be bored in the bottom of the barrel and a funnel inserted, through which the slops may be poured. If the soil is porous, a trough may be dug and covered with mosquito netting or cheese cloth, and the water poured through this and allowed to drain off.

Excreta is the most deadly form of waste, and too much care cannot be exercised in disposing of it. Impress upon every man that he must cover completely with dirt all excreta so that flies may not have a chance to approach it.

For short stops and while working in the field "straddle," latrines are the best. These are shallow trenches the width of a shovel, about 12 inches wide, and several feet in length. For long stops a deep

latrine is dug of the following dimensions: 2 feet wide, 6 feet deep by 15 feet long. Two posts with crotches, driven at the ends of this trench, supporting a substantial pole to make a seat * * * for convenience a hand rail placed in front of this improvised seat will add to the comfort of the men.

A more permanent latrine is made by covering the pit with a wooden box, in the top of which are cut holes of the necessary diameter. To these holes should be fitted spring covers which will shut down tightly. A wooden frame boarded around this arrangement makes a satisfactory enclosure.

A urinal made of two long boards joined together to form a V-shaped trough and drained by a pipe into the pit completes the whole. A pitch sufficient for rapid drainage should be given the urinal trough.

When necessary to utilize separate urinals, a hole filled with stone and sprinkled daily with quicklime is sufficient for short periods. At night there should be a galvanized iron can placed in each company street and emptied before reveille each morning. This can must be disinfected by burning out, as must be the latrines when earth or sand is not used as a covering each time.

Pits must be covered daily with quicklime, ashes, earth and filled when within two (2) feet of the surface. Their position should be distinctly marked so as to prevent reopening.

It is a safe rule never to use an old camp ground, but select a new one, even if less conveniently located. Camp sites should be changed if it is found that the soil is becoming polluted, or if the ground is cut up and dusty from constant use.

The condition in which a camp site is left by an organization will clearly indicate the efficiency and discipline in a command.

CHAPTER 10.

Personal Hygiene and First Aid.

This is a purely arbitrary grouping of topics for the purpose of saving space. Either of the topics mentioned could be treated at length; detailed information will be found in any of the reference books mentioned in the bibliography.

PERSONAL HYGIENE means "the preservation of health by attention to the care of the body;" it is determined by the formation of correct habits. Cleanliness of person, clothing and bedding should become a habit of life with the soldier; but some men will always require watching and admonition. These habits are: personal cleanliness; regulation of diet; avoidance of excesses (eating, drinking and sexual matters); wearing suitable clothing; keeping the bodily processes at work (kidneys, bowels and skin); taking sufficient exercise, preferably in the open air; rest of body and mind, with recreation for the latter; maintaining the surroundings in which one lives in a cleanly state.

BATHING is easily the most important requirement in matters of personal hygiene; men should bathe as often as conditions of life in barracks and camp will permit. On the march a vigorous "dry rub" with a coarse towel will often prove an excellent substitute when water is not available. *Teeth* should be cleaned at least twice daily. *Clothing* should be kept clean, particularly underclothing. *Diet* is not a matter which a soldier can determine to any extent for himself; but he can follow a certain few precautions:

1. Don't eat hurriedly; chew the food properly.
2. Don't overload the stomach.
3. Don't eat green or overripe fruit.
4. Don't eat anything while away from camp or barracks, whose materials or manner of preparation seem questionable.

5. Don't bring a "grouch" to the table with you.

6. Don't eat on the march; don't drink too much water on the march.

SEXUAL INDULGENCE is a matter to be handled tactfully, but with absolute frankness. Men should be taught that it is not a matter of necessity; that their health will not suffer by any lack of it; that they themselves will be the sufferers for any violations of rules of health. The procedure directed by the War Department for purposes of combatting infection is as follows:

1. That physical inspections of enlisted men be made twice each month for the detection of venereal disease.

2. That any soldier who exposes himself to infection shall report for cleansing and preventive treatment immediately upon return to camp or garrison.

3. That any soldier who fails so to report, if found to be suffering from a venereal infection, shall be brought to trial by court martial for neglect of duty.

4. That men so infected shall be confined strictly to the limits of the post during the infectious stages of the disease.

5. That all officers serving with troops shall do their utmost to encourage healthful exercises and physical recreation and to supply opportunities for cleanly social and interesting mental occupations for the men under their command.

6. That company and medical officers shall take advantage of favorable opportunities to point out the misery and disaster that follow upon moral uncleanness; and the fact that venereal disease is never a trivial affair.

With a great many men these precautions and measures will not be necessary but for the sake of those who are ignorant or neglectful, proper steps should at all times be taken.

EXERCISE.—A sufficient amount of exercise to maintain health is ordinarily provided by military drills and other duties requiring active movement. But this should

be regarded only as the minimum of exercise; athletic work should be encouraged (and this will be done by the present activities of those "higher up"); bayonet training will be found an excellent medium of accomplishing a double purpose; calisthenics should be short but snappy and vigorous. A vigorous policy of an officer as regards things of this sort will ward off a great many minor ills and particularly "colds," which are often the result of poor ventilation.

CLEANLINESS OF SURROUNDINGS.—Men should be taught that cleanliness of surroundings is not merely for purposes of inspection; but that it is absolutely necessary where a great number of men are living together in close quarters. Quarters should be well policed; the company street should be kept clean; refuse of all sorts should be kept in receptacles provided for that purpose and frequently removed. A police squad appointed daily should be charged with this work, and the corporal of the same made responsible for the condition of quarters and the company street.

PREVENTABLE DISEASES.—Men should be given a certain amount of theoretical knowledge of preventable diseases. These matters will be taken care of to a large extent by the Medical Corps; but men should be taught just what precautions are necessary to avoid recourse to the hospital.

VENEREAL diseases have already been touched upon.

TYPHOID FEVER is a germ disease and communicable. Vaccination is the first preventive; protection of water supply is the second; thorough disposal of wastes is a third; and sharp punishment for violation of sanitary regulations is a fourth. Habits of personal cleanliness will do much to prevent any such disease.

DYSENTERY is very common in field service, but may be prevented by same methods as for typhoid fever, save for vaccination; men suffering from this malady should be isolated, if possible, and utmost precaution taken to prevent spread of the disease.

MALARIA is a mosquito disease; get rid of mosquitoes and then you will get rid of the carrier of the germs. Quinine may act as a preventive. Cases should be isolated, if possible.

TONSILITIS AND COLDS may be combatted very effectively by proper precautions as to ventilation.

MEASLES.—Very important but little known; isolation recommended.

There are many other diseases concerning which the men should be instructed, but lack of space prevents further treatment of them. They should be taught the proper treatment of blistered feet, for they incapacitate a great many men; the chief causes are ill-fitting shoes and our old friend "uncleanliness." Shoes are the most important article of clothing of the infantryman; each man should have one pair well broken in for marching, and two other pairs. Socks should be soft, smooth and without holes — also *clean*. Further steps for the prevention of blisters are; hardening of the skin by appropriate baths for the feet; soaping the feet; or adopting some other means of reducing the friction of the foot against the sock. *Treatment* — Wash the feet; open the blister at the lowest point, with a clean needle; dress with vaseline or other ointment and protect with adhesive plaster, care being taken not to shut out the air. Zinc oxide plaster is excellent. Sterilize a needle; thread it with a woolly thread and run it through blister, leaving ends projecting about one-half inch; this will act as a wick and dry up blister in short time.

FIRST AID.—Explain to the men the uses of the first aid packet and of the pouch carried by the Medical Corps. (This pouch is being replaced by web-belts with pockets.)

WOUNDS may be classed as ordinary cuts, inside wounds, lacerated, punctured and poisoned wounds. For ordinary minor wounds — iodine and exposure to the air are usually sufficient. *War wounds* are usually caused by something having an explosive effect and may

be accompanied by hemorrhage, shock and even loss of function; they may be arterial or venous.

POISONED WOUNDS are of two sorts; external and internal.

DIAGNOSIS TAG.— This tag placed on a soldier shows wound, name, rank, regiment, treatment received, etc. This tag should be carefully read before further treatment is accorded.

TREATMENT OF WOUNDS.— The compress of the first aid packet will always prove of help.

BLEEDING WOUNDS.— The bandage of the first aid packet will stop all ordinary bleeding; but in aggravated cases the bleeding may be stopped by pressure on the artery, between the wound and the heart. This may be done by hand or by means of the forceps in the medical pouch. The points of compression should be learned and located; in front of the ear just above the socket of the jaw; in the neck in front of the strongly marked muscle reaching from behind the ear to the upper part of the breast bone; in the hollow behind the collar bone; just behind the inner border of the larger muscle of the arm; the femoral artery at the middle of the groin where the artery passes over the bone. Bleeding may also be stopped to some extent by elevating the wounded part. A tourniquet may be improvised by using the compress, running a stick or the bayonet through the band, and taking up the slack by twisting.

POISONED WOUNDS.— For a *snakebite* make a tight constriction just above the wound; make an incision at the bite and suck out the poison. *Do it quickly.* If this is impossible, follow the same plan but give a stimulant; repeatedly loosen the constriction and let a little of the poison into the system at a time to be neutralized. In cases of chemical poisoning do not follow the usual method of treating poisoning. *Do not make the patient vomit*, but give him something fat or albuminous such as raw eggs or milk. This forms mercurial albuminate.

Ptomaine poisoning (symptoms are headache, cramps, nausea, high fever and chills, etc.). Drink salt water, vomit and repeat the procedure to clean out the stomach. A purgative should also be taken. Ice cream and milk kept too long are frequent causes of this sort of poisoning, as are dishes kept in the icebox over night.

Fainting, Heat Exhaustion and Shock are all of the same class; symptoms are the same—weak pulse, paleness and low temperature, tendency to fall to ground. Often follows taking too much water on the march. Treatment should be in nature of stimulant; make patient lie down, get blood to his head, wrap him in blankets, give him hot drinks, etc.

SUNSTROKE.—Symptoms and treatment are different. Patient has a high temperature. Keep his head high and feet low; disrobe him and pour cold water on him; keep him in a cool place until temperature lowers to 101; then remove cold water and temperature will go down itself. Do not apply cold water too long as the temperature may go to sub-normal which is just as dangerous as a temperature abnormally high.

BURNS AND SCALDS.—Air should be shut out; otherwise treat like blister, care being taken not to remove skin. Do not put on anything that will stick and do not try to remove anything that has a tendency to stick; put on linseed oil and water, cotton and a loose bandage.

FREEZING AND FROSTBITES.—Use ice water and snow to start with. Keep the patient cool until he is thawed out. Massage and gradually work up to a warmer temperature.

FRACTURES are of three kinds; simple, compound and comminuted.

Simple: Bones do not penetrate the skin (may be single or double).

Compound: Bones penetrate the skin and cause infection.

Comminuted: Bone is shattered.

Indications of a fracture are: Pain, redness, swelling and mobility where it ought not to be.

TREATMENT.— Find out the kind of fracture. Paint the wound and put on first aid packet; replace the clothes and splint the break. Splints should not be too long so as to cause any friction or annoyance to the patient. They may be made out of any available material, such as rifle, bayonet, shingle, piece of board, scabbard, etc. Bind them firmly but not too tightly.

ARTIFICIAL RESPIRATION.— This subject is worthy of more treatment than it can be accorded here. Any text on first aid will explain thoroughly the Schaefer method, which is now the standard method in the army. Points to be remembered in this method are; remove foreign articles from the mouth; curl the little finger over the 12th rib; avoid the pelvic bones; hold the arms straight and apply the pressure by means of the whole body brought forward; take care not to break a rib; do not give up too soon.

TRENCH FOOT.— This is due to long standing with legs and feet in wet clothes. There are three types:

Mild: Symptoms are numbness and a slight swelling.

Medium: Additional symptom of a bluing of the leg; also large blisters.

Severe: Gangrene sets in.

Tight clothes help to bring on these things. Keep the shoes, socks and breeches loose; keep the clothes dry; furnish the men with hot food in the trenches and so keep up the circulation. *Do not use grease.* Trench foot can be avoided by proper treatment, and punishment should follow upon its contraction.



CHAPTER 11.

Signaling.

This chapter proposes to cover a large amount of ground in a small compass; hence treatment must be brief. A more liberal treatment will be found at different sources; here a few suggestions and hints will be given.

SEMAPHORE.—Time spent, 6 hours: 6 sessions $1\frac{1}{2}$ hours, 1 session 1 hour, 1 conference 2 hours. It is easy to say “just learn the semaphore,” but to learn it quickly and well is another matter. A few suggestions as to the methods followed by others will usually prove helpful. Learn the semaphore by what may be called the “cycle” method, *i. e.*, teach and illustrate how the successive letters are formed by moving the arm or arms around the body in a clockwise direction through successive stages. There are a few exceptions to the rule as will be pointed out; but they only serve as a few landmarks and help to fix the whole matter more firmly in mind.

FIRST CYCLE.—1 arm. A to G. One arm always at the interval. Be sure to make the “D” with right arm straight overhead—then it is more distinct at a distance. (Plate.)

SECOND CYCLE.—2 arms. H to N, inclusive, with exception of J. One arm always in the A position. In making I always be sure that the left hand is at the A position. Some men insist in making this letter wrong by crossing the body with the left hand uppermost. This is very awkward and also very indistinct at a distance. P changes arms but retains same relative position of flags.

THIRD CYCLE.—2 arms. T and U. Right arm in position of C. Letter U actually resembles that letter.

THIRD CYCLE.—2 arms. O to S. One arm always in B position. In letter O, left arm is in B position; in all others, right arm.

FOURTH CYCLE.—2 arms. T and U. Right arm in position of C. Letter U actually resembles that letter.

DOUBLES.—L, U, R, N. These letters are keys to many others and should be promptly learned.

OPPOSITES.—V and K, O and W, Q and Y, S and M, Z and H, X and I, M follows L in cycle and is opposite of S, S follows R in cycle and is opposite of M, K precedes L in cycle and is opposite of V. Figures are first 10 letters of alphabet, preceded by crossing flags overhead.

INSTRUCTING.—This plan of teaching the semaphore will be found very helpful, for it helps to reason out the alphabet for the student. By fixing firmly in mind a few things the student can soon reason out the alphabet for himself by a very logical plan.

SECOND STEP.—After the men have been taught the alphabet they should either pair off and one man send to the other, or one man should be selected to send for the entire class. At first only letters should be sent until the men have learned the alphabet thoroughly. In this way the key characters of the alphabet can be fixed in mind, as well as their relation to the other letters.

THIRD STEP.—The men should next be paired off and instructed to send simple messages to each other. You should insist that there be no other communication between the men than by means of their flags.

FOURTH STEP.—Proceed to simple qualification tests, four men working in two pairs and the pairs alternating in sending and receiving. One man of first pair should read for his companion to send. On the other end, one man should read and the other copy. The distances should be such as to preclude the possibility of conversation. Forty letters per minute is a fair test; or this system may be followed: Have a good signalman send 10 combinations of 5 letters each to the whole class. The men should read these and write

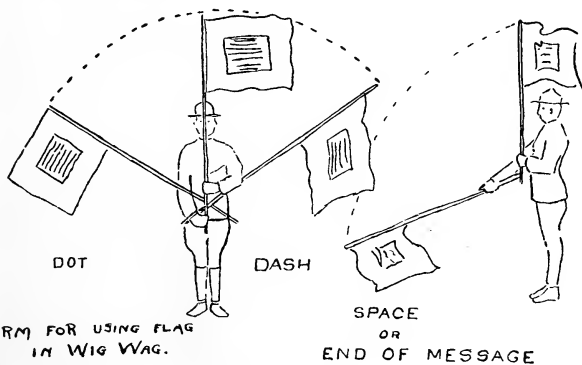
Plate
#13

ERROR A	I F 6	NEGATIVE K
B 2	G 7	PREPARATORY L
C 3	H 8	M
D 4	I 9	ANNULING N
E 5	J 0	INTERROGATORY O

AFFIRMATIVE P	U	Z
Q	V	ATTENTION
ACKNOWLEDGE R	W	INTERVAL
S	X	(HUMBERT FOLLOW)
T	Y	

SEMAPHORE ALPHABET.

a-g 1st cycle, h-n 2nd cycle, o-s 3rd cycle, t-u 4th cycle



them down, *one combination at a time*. Time limit should be 3 minutes.

WIG WAG.—Time spent: Same as semaphore course. The alphabet can be found in any standard signal book, or in the “Manual for Non-Commissioned Officers and Privates.” The dots are made to the right of the body, the dashes to the left; interval at the end of a word by dipping the flag once to the front, at the end of a sentence by dipping it twice, and at the end of a message by dipping it three times. The alphabet should be learned first according to the same general plan as in the semaphore; *i. e.*, the key letters to certain combinations should first be learned. The following grouping of letters may be found helpful:

E I S H; T M O; A U V; N D B; R F L; K C Y;
W P J; G Z Q.

The instructor can find many other groupings that will aid him. It should also be pointed out that each number from one to ten consists of five characters, and that each succeeding number follows the previous one according to a regular method.

After the men have studied the alphabet sufficiently, have them send to each other, limiting the work at first to letters only. Then gradually work up to the point where they may send simple messages. Make them rely upon the flags for communicating during the practice. Do not permit conversation—separate the men by a considerable distance. In both wig wag and semaphore instruction the same plan should be followed as in teaching a foreign language; *i. e.*, confine all communication to the medium under study. Qualification tests are similar to those for the semaphore, except that less speed can be exacted; 15 characters per minute or 10 combinations of 5 letters each to be received and written down in 5 minutes.

In both the semaphore and the wig wag men should be taught the conventional signals used in field work. These can be found in any manual on the subject.

POINTS TO REMEMBER.

The semaphore is a quicker means of communication than the wig wag; but the wig wag can be used in a prone position under shelter.

Lanterns can be used at night for semaphoring.

Acetylene lamps can be used at night in place of the wig wag. In this case a short flash represents a dot, a long flash a dash.

A few men in each company should be developed into expert signalers; some men always show aptitude for this sort of thing.

Frequent use should be made of signaling in field work.

Letter Codes.

INFANTRY.

For use with General Service Code or semaphore hand flags.

Letter of alphabet	If signaled from the rear to the firing line	If signaled from the firing line to the rear
AM	Ammunition going forward.	Ammunition required.
CCC	Charge (mandatory at all times).	Am about to charge if no instructions to the contrary.
CF	Cease firing.	Cease firing.
DT	Double time or "rush."	Double time or "rush."
F	Commence firing.	
FB	Fix bayonets.	
FL	Artillery fire is causing us losses.	
G	Move forward.	Preparing to move forward.
HHH	Halt.	
K	Negative.	Negative.
LT	Left.	Left.
O	What is the (R.N., etc.)? Interrogatory.	What is the (R.N., etc.)? Interrogatory.
.. — .. (Ardois and semaphore only.)		
.. — .. (All methods but Ardois and semaphore.)	What is the (R.N., etc.)? Interrogatory.	What is the (R.N., etc.)? Interrogatory.
P	Affirmative.	Affirmative.
RN	Range.	Range.
RT	Right.	Right.
SSS	Support going forward.	Support needed.
SUF	Suspend firing.	Suspend firing.
T	Target.	Target.

Arm Signals.

The following arm signals are prescribed. In making signals either arm may be used. Officers who receive signals on the firing line "retreat back" at once to prevent misunderstandings.

FORWARD MARCH.— Carry the hand to the shoulder; straighten and hold the arm horizontally, thrusting it in direction of march. This signal is also used to execute quick time from double time.

HALT.— Carry the hand to the shoulder; thrust the hand upward and hold the arm vertically.

DOUBLE TIME, MARCH.— Carry the hand to the shoulder; rapidly thrust the hand upward the full extent of the arm several times.

SQUADS RIGHT, MARCH.— Raise the arm laterally until horizontal; carry it to a vertical position above the head and swing it several times between the vertical and horizontal positions.

SQUADS LEFT, MARCH.— Raise the arm laterally until horizontal; carry it downward to the side and swing it several times between the downward and horizontal positions.

SQUADS RIGHT ABOUT, MARCH (if in close order) **or, TO THE REAR, MARCH** (if in skirmish line).— Extend the arm vertically above the head; carry it laterally downward to the side and swing it several times between the vertical and downward positions.

CHANGE DIRECTION OR COLUMN RIGHT (LEFT), MARCH.— The hand on the side toward which the change of direction is to be made is carried across the body to the opposite shoulder, forearm horizontal; then swing in a horizontal plane, arm extended, pointing in the new direction.

AS SKIRMISHERS, MARCH.— Raise both arms laterally until horizontal.

AS SKIRMISHERS, GUIDE CENTER, MARCH.—Raise both arms laterally until horizontal; swing both simultaneously upward until vertical and return to the horizontal; repeat several times.

AS SKIRMISHERS, GUIDE RIGHT (LEFT), MARCH.—Raise both arms laterally until horizontal; hold the arm on the side of the guide steadily in the horizontal position; swing the other upward until vertical and return it to the horizontal; repeat several times.

ASSEMBLE, MARCH.—Raise the arm vertically to its full extent and describe horizontal circles.

RANGE, OR CHANGE ELEVATION.—To announce the RANGE, extend the arm toward the leaders or men for whom the signal is intended, fist closed; by keeping the fist closed battle sight is indicated; by opening and closing the fist, expose thumb and fingers to a number equal to the hundreds of yards; to add 50 yards describe a short horizontal line with forefinger. *To change elevation*, indicate the *amount of increase or decrease* by fingers as above; point upward to indicate increase and downward to indicate decrease.

WHAT RANGE ARE YOU USING? OR WHAT IS THE RANGE?—Extend the arms toward the person addressed, one hand open, palm to the front, resting on the other hand, fist closed.

ARE YOU READY? OR I AM READY.—Raise the hand, fingers extended and joined, palm toward the person addressed.

COMMENCE FIRING.—Move the arm extended in full length, hand palm down, several times through a horizontal arc in front of the body.

FIRE FASTER.—Execute rapidly the signal “COMMENCE FIRING.”

FIRE SLOWER.—Execute slowly the signal “COMMENCE FIRING.”

TO SWING THE CONE OF FIRE TO THE RIGHT, OR LEFT.—Extend the arm in full length to the front,

palm to the right (left) ; swing the arm to right (left), and point in the direction of the new target.

FIX BAYONET.— Simulate the movement of the right hand in “ Fix Bayonet.”

SUSPEND FIRING.— Raise and hold the forearm steadily in a horizontal position in front of the forehead, palm of the hand to the front.

CEASE FIRING.— Raise the forearm as in *suspend firing* and swing it up and down several times in front of the face.

PLATOON.— Extend the arm horizontally toward the platoon leader ; describe small circles with the hand.

SQUAD.— Extend the arm horizontally toward the platoon leader ; swing the hand up and down from the wrist.

RUSH.— Same as *double time*.

The signals PLATOON and SQUAD are intended primarily for communication between the captain and his platoon leaders. The signal PLATOON or SQUAD indicates that the platoon commander is to cause the signal which follows to be executed by platoon or squad.

CHAPTER 12.

Guard Duty.

Time spent: Study, 2 hours.
Conference, 2 hours.
Formal guard mounting.

GUARDS are divided roughly into four classes:

1. Exterior — (Which come more properly under head of field service).
2. Interior — Their purpose is to preserve order, protect property and enforce police regulations.
3. Military Police — Also treated of in field service.
4. Provost Guards — Used in the absence of military police to aid civil authorities in preserving order among soldiers beyond the interior guard.

Here we are concerned chiefly with interior guards. We shall make up a brief summary of what an officer must know and what he ought to teach his non-coms. and men. Also we shall touch upon the subject of guard duty as it has been changed by trench warfare.

An officer ought to have a good grasp of the following subjects relative to guard duty:

1. Guard mounting (both formal and informal).
2. Posting reliefs.
3. Preparation and running of rosters.
4. General orders — also special orders at post No. 1.
5. Duties of the following in reference to guard duty:
 1. Commanding officer.
 2. Officer of the day.
 3. Adjutant.
 4. Sergeant Major.
 5. Commander of the guard.
 6. Sergeant of the guard.
 7. Corporal of the guard.
 8. Musicians.
 9. Orderlies and color sentinels.
 10. Privates of the guard.

6. Compliments of the guard.

7. Prisoners: General.

Garrison.

Awaiting trial.

Awaiting result of trial.

How is an officer arrested? Can an enlisted man arrest him?

How is a non-com. arrested?

How is a soldier arrested?

How is a civilian arrested?

(See a.w. No. 68.)

An officer ought to teach to his non-coms. as much of the above as is consistent with time and other demands; he ought to teach to his privates all that is necessary to the proper discharge of their duties in this connection.

FORMAL GUARD MOUNTING.—Here follow a few reminders that may help the reader to keep the ceremony in mind:

1. Weather conditions permitting, guard mounting takes place every day at the discretion of the C. O.

2. Tour of duty is 24 hours; there are 3 reliefs, 2 hours on and 4 hours off. No organization is detailed for guard duty more than once in 5 days if this can be prevented.

CEREMONY.—1. The band takes post, its left 12 paces to the right of where the right of the guard is to be.

2. Adjutant's Call.—The Adjutant marches to the parade ground (Sergeant Major on his left) and takes post 12 paces in front of and facing the center of where the guard is to rest. The Sergeant Major continues on, marches by the left flank and takes post 12 paces to the left of the band and facing in the direction the line is to extend.

3. The details are marched to the parade ground by the senior non-commissioned officers, halted and dressed as follows:

FIRST DETAIL.— Non-commissioned officer.— 1. Detail; 2. Halt. The detail is halted against the left arm of the Sergeant Major; the non-commissioned officer steps out, faces the Sergeant Major at a distance slightly greater than the front of the detail and commands: 1. Right; 2. Dress. The detail dresses on the line formed by the Sergeant Major and the Commander of the detail. 3. Front. The Commander of the detail salutes and reports: “The detail is correct” (or otherwise). When the report is made the Sergeant Major returns the salute. The Commander of the detail passes by the right of the guard and takes post in rear of the right file of his detail.

OTHER DETAILS.— Non-commissioned officers.— 1. Detail; 2. Halt; 3. Right; 4. Dress; 5. Front. Each commander of a detail halts his detail, dresses it on the general line, salutes and reports as does the first; then takes his post in a similar manner. Should the commander of a detail not be a non-commissioned officer he passes by the right of the guard and retires.

4. **SERGEANT MAJOR.**— He takes one step to the right, draws sword and verifies the detail, and then commands: “Count off.” He completes the last squad if necessary and indicates the division into platoons; then takes his post and commands: 1. Open ranks; 2. March. This is executed as laid down in the Infantry Drill Regulations. 3. Front. He then moves parallel to the front rank until opposite the center, turns to the right, halts half-way to the Adjutant, salutes and reports: “Sir, the details are correct” (or otherwise).

5. **ADJUTANT:** “Take your post.” (Adjutant draws saber.)

6. **SERGEANT MAJOR.**— Faces about, approaches to within two paces of the center of the guard, turns to the right and moves three paces beyond the left of the guard, turns to the left, halts on the line of the front rank, faces about and brings his sword to the order. (When

the Sergeant Major has reported the Officer of the Guard takes his post, as shown in the diagram, and draws saber.)

7. ADJUTANT.—1. Officer (officers) and non-commissioned officers; 2. Front and center; 3. March. At “Center” the officer carries saber; at “March” the officer advances and halts 3 paces from the Adjutant, remaining at the carry; non-commissioned officers pass by the flank, move along the front and form in order of rank from right to left, 3 paces behind the officer, remaining at the right shoulder. If there is no officer of the guard the non-commissioned officers halt 3 paces from the Adjutant. The Adjutant assigns them to their positions in order of rank—commander of the guard; leader of the first platoon; leader of the second platoon, etc., and commands: 1. Officer (officers) and non-commissioned officers; 2. Posts; 3. March. At the command “March” they take their posts as prescribed in the School of the Company with open ranks (Platoon leaders 3 paces in front of center of their platoons).

8. ADJUTANT: “Inspect your guard, sir.”

9. OFFICER OF THE GUARD.—Faces about and commands: “Prepare for inspection.”

10. ADJUTANT (after the inspection is ended, and after posting himself 30 paces in front of and facing center of the guard—at the same time the new Officer of the Day takes position about 30 paces behind the Adjutant, facing the guard, and with the old officer of the day 1 pace in rear and 3 paces to the right): 1. Parade; 2. Rest; 3. Sound off. (The band, playing passes in front of the Officer of the Guard to the left of the line, returns to its post and ceases to play.) 1. Guard; 2. Attention; 3. Close ranks; 4. March. (As in the School of the Company.) 1. Present; 2. Arms. He then faces the new officer of the day, salutes, and reports: “Sir, the guard is formed.”

11. NEW OFFICER OF THE DAY (returning salute): “March the guard in review, sir.”

12. ADJUTANT.—He carries saber, faces about, brings the guard to the order and commands: “1. At trail, platoons right; 2. March; 3. Guard; 4. Halt.” The band takes post 12 paces in front of the first platoon, the Adjutant 6 paces from the flank and abreast of the Commander of the Guard, and the Sergeant Major 6 paces from the flank of the second platoon. Adjutant commands: “1. Pass in review; 2. Forward; 3. March.”

13. COMMANDER OF THE GUARD (as the guard reaches a position 6 paces from the Officer of the Day): 1. Eyes; 2. Right; (at 6 paces beyond the Officer of the Day) 3. Front.

At 12 paces beyond the Officer of the Day the Adjutant and the Sergeant-Major halt, salute and retire.

14. COMMANDER OF THE GUARD (as the Adjutant and the Sergeant Major retire): 1. Platoons, right by squads; 2. March. The guard is then marched to its post; the old guard is then relieved and sentinels posted according to the principles laid down in the Manual of Interior Guard Duty. (See diagrams at the end of this chapter.)

GUARD DUTY IN THE TRENCHES.—It differs from guard duty as we are accustomed to it. The challenge is not “Who is there?” but rather a sudden and imperative “Hands up.” The party challenged throws up his hands and gives the countersign in a low voice. Sentinels are posted in the front line and in the line of dugouts, one at each entrance to a dugout to give immediate warning. Watchers are posted at places having a good range of view; at night they keep watch over the parapets rather than through the loopholes since the latter afford only a narrow range of view. Auto riflemen (6 or 7 to a post) are used as watchers, one being on duty at a time. They should have a favorable background to provide concealment.

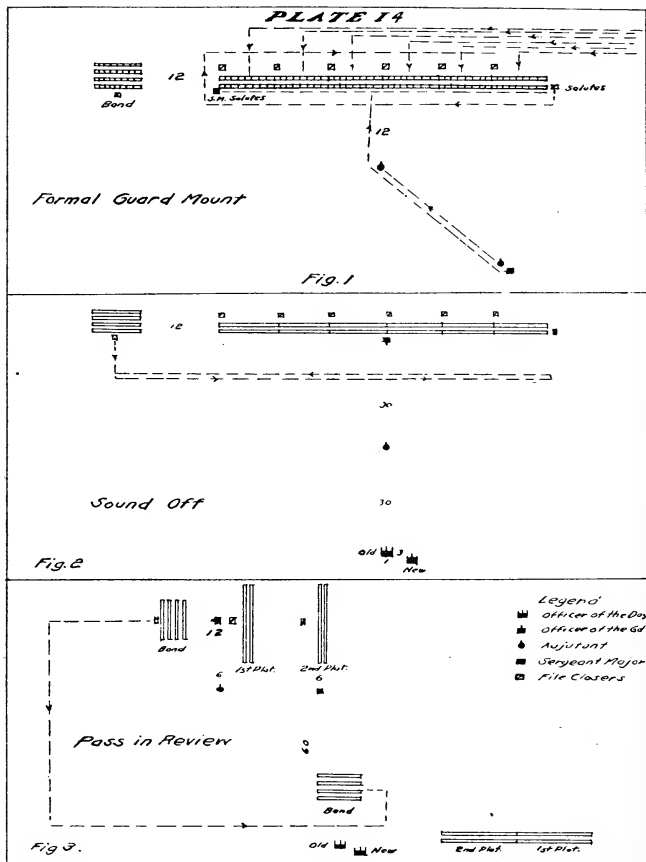
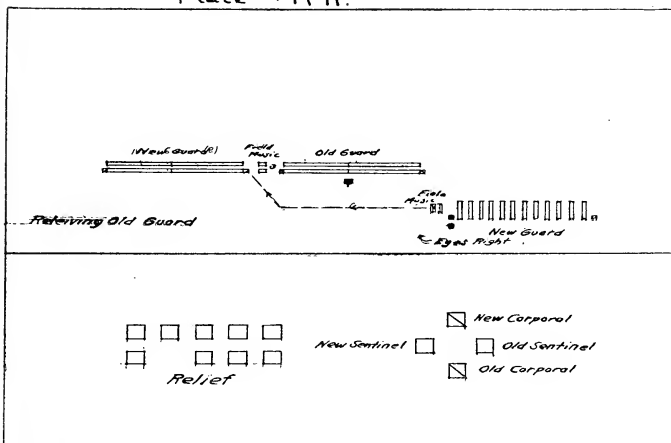
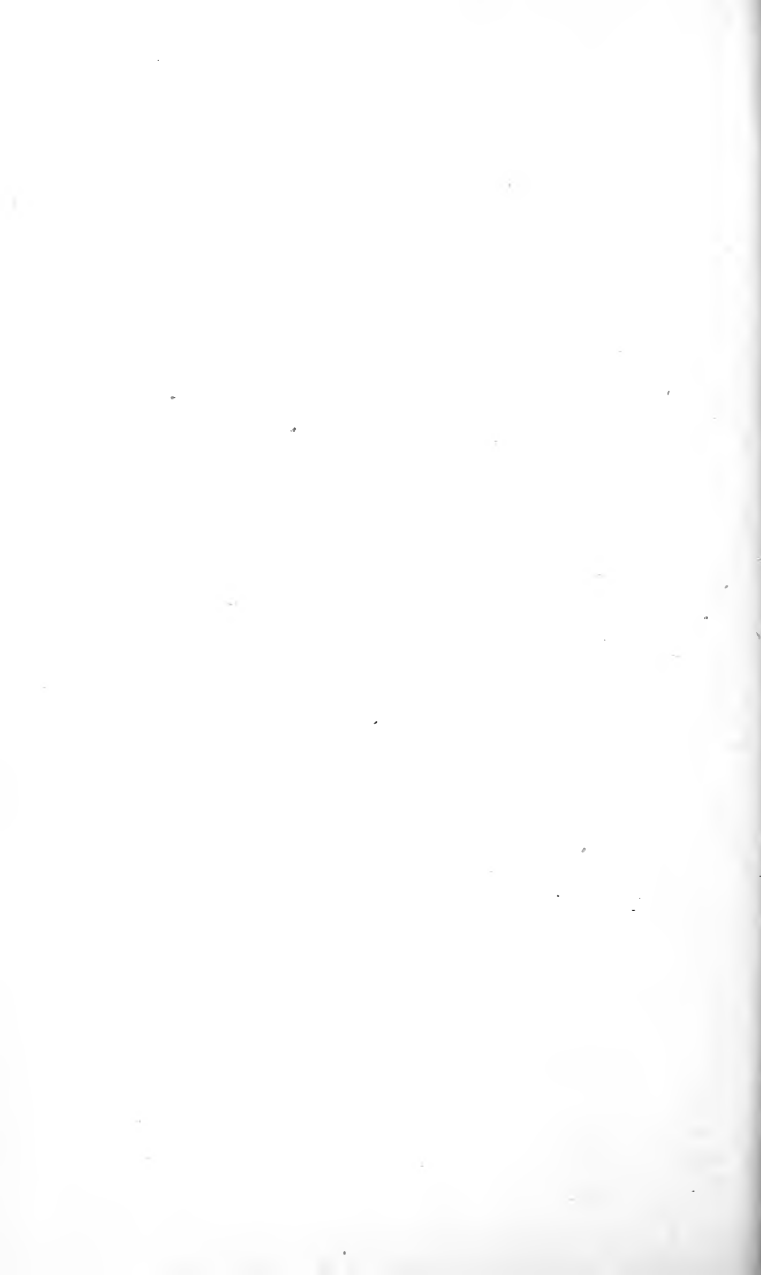


Plate #14 A.





CHAPTER 13.

Company Administration.

Company administration is a very broad subject and can be really learned only by experience. However, this chapter will attempt to point out a few suggestions and practices that may prove of some assistance, particularly to the new officer. We shall treat briefly of the first organization of the company; then we shall try to reproduce in some slight measure the actual work of a day in camp (more particularly of a training camp such as Plattsburg); then finally we shall treat of the orderly room and some of the problems that come up in army paper work.

Notes on Organization.

(By MAJOR W. H. WALDRON, Twenty-Ninth Infantry.)

1. PREPARE IN ADVANCE TO RECEIVE MEN ASSIGNED TO COMPANY.

(a) Detail one of the Lieutenants in charge of the company mess.

DUTIES.—Secure the necessary kitchen and dining room equipment and prepare everything to start the mess; make up a bill-of-fare for a week based on the ration components and supplies available; secure the rations and issue them to the cooks daily. Train a mess Sergeant in the duties that fall to him. In fine, this Lieutenant will have complete charge of the company mess, the cooking, and serving of the meals, training of cooks and men detailed for duty in connection with the mess.

(b) Detail the other Lieutenant in charge of property.

DUTIES.—Procure all the articles of individual and company equipment from the Regimental Supply Officer. Get it into the company storeroom and prepare

it for issue. Train the Company Supply Sergeant in the duties that will fall to him.

(c) This leaves the Company Commander free to organize the orderly room and make the necessary preparations to receive the men as they report.

IF IN CANTONMENT.— Lay out the quarters into platoon sections and subdivide these into squads, allowing space for platoon leaders and guides. Starting at the end of the quarters plainly mark each squad section, 8 beds, four on each side of the aisle with the number of the squad — first squad, second squad, etc.

IF IN TENTS.— Number the tents, one for each squad, leaving two tents in the center for platoon leaders, guides, etc. Prepare a sheet having a space for each squad, large enough to enter eight names in it. Prepare a measuring post where the men can be measured for height as they report.

2. MEN REPORTING :

(a) When the men arrive they will be sent to Regimental Headquarters direct. There they will receive their assignment to a company. When so assigned they will be directed to join the company.

(b) A table on which is spread the squad assignment sheet is located at the head of the company street. Nearby is located the measuring post. When a man reports, look him over, receive him in the company, make him feel at home. Make him feel that he is welcome. This little act will pay you large dividends in contentment and company *esprit de corps* later on. Turn him over to the man in charge of the measuring post to get his height. Assign him to a squad corresponding to his height. Enter his name in the squad space to which he is assigned and send him to the section of the cantonment designated for that particular squad. Detail a few of the first men who report for duty to assist in this work.

Say you have 16 squads. They will run in height about as follows:

1st squad, over 6 feet; 2nd, 6 feet; 3rd, 6 feet; 4th, 5 feet 11 inches; 5th, 5 feet 11 inches; 6th, 5 feet 10 inches; 7th, 5 feet 10 inches; 8th, 5 feet 9 inches; 9th, 5 feet 9 inches; 10th, 5 feet 8 inches; 11th, 5 feet 8 inches; 12th, 5 feet 7 inches; 13th, 5 feet 7 inches; 14th, 5 feet 6 inches; 15th, 5 feet 6 inches; 16th, 5 feet 5 inches. If there are more squads put them in the 5 feet 7 to 5 feet 9 inches class.

(c) As soon as practicable place one member of the squad in charge for the ensuing 24 hours, change this detail every day until every man of the squad has had an opportunity to demonstrate his ability. This will assist you greatly in the selection of your non-commissioned officers.

(d) Should the entire company be assigned in a body, line them up in a row according to height and assign them to squads. Place the most likely looking man in each squad in charge for the time being.

3. ISSUE OF EQUIPMENT:

(a) The articles of camp equipment, bedding and poncho should be issued as soon as practicable. These are necessary for the immediate comfort of the men.

(b) Hold the articles of personal equipment for issue later on. Do not dump the entire equipment on a man all at once. There is nine-tenths of it that he knows nothing about. He does not know what it is for. As the training progresses you can issue it to him, an article or two at a time until he has finally gotten all of it. Before issuing an article, explain at a company formation, what it is for, the purpose it serves and where it is carried.

(c) Uniforms and clothing should be procured as soon as practicable. The commanding officer will indicate whether or not the clothing will be requisitioned for in bulk or on individual clothing slips. The supply officer will provide a quartermaster publication which

shows the sizes of clothing by the numbers. Seek out a couple of tailors in the company, have them measure the men and make a record of the sizes of clothing that they require. Shoes will have to be fitted to each man. Make them large enough. The average recruit will want to wear a shoe at least one size too small for him. When he gets the pack on and drags it around all day his feet will swell and fill his small shoes to the bursting point. Do not let the men decide what size shoes they will wear; you decide it for them and make them plenty big. This work of measuring the men can be started right out the first day. The captain that gets in his requisition first, properly made out, will be the first to get his clothing.

4. ORGANIZATION:

(a) As soon as practicable get the company organized into permanent squads. Try out squad leaders for a few days. You will soon be able to select the men that you will want for non-commissioned officers. Be careful in their selection so that you will not have to make many changes. Don't be in too much of a hurry about making sergeants; try them out as corporals first. Try to get a good man and start him in as mess sergeant. A man with hotel experience, especially the kitchen and dining room end of the business, give him a trial. Your lieutenant in charge of the mess can tell in a day or two how he stacks up. Make it plain that the men detailed from day to day are merely acting non-commissioned officers and that you are merely placing them in charge to give them an opportunity to demonstrate their ability. It's better to work this proposition out in a systematic manner than it is to jump in and make a lot of non-commissioned officers that you will have to break later on to make way for better men.

Give your acting non-commissioned officers all the responsibility you can. Assign tasks with their squads and see how they get away with it.

(b) At one of the first formations explain the rules of camp sanitation and personal cleanliness and the necessity for their strict observance.

(c) Start right out with a system of rigid inspections so that the men will acquire habits of cleanliness and tidiness of their surroundings. Once this is acquired it is easily maintained. The reverse of this statement is equally true. Let a company get started in a slovenly, untidy manner and it is difficult to get it back on the right track again.

(d) As soon as uniforms are issued have every man dispose of his civilian clothing, dress suit cases, trunks, etc. There is no place for them in the cantonments or tents. Strip right down to uniforms and allow no civilian clothing around.

(e) Before issuing rifles provide places for their safe keeping in cantonments. If wooden trunks are used, a wire staple driven into the upright of the bed at the height of the slacking swivel forms an excellent support; simply hook the slacking swivel into the staple.

(f) Get every man interested in the company. Be personally interested in every man yourself. Do not permit any swearing at the men or around the barracks. Explain the idea of military courtesy and the salute and insist on its being carried out at all times. By doing all of these things and systematizing your work of training and instruction right from the start you lay the foundation for a "good company." Fifteen good companies make a "good regiment" and so on up to the division, and that's what we want "good divisions"—the basis of which lies in the "good company" which you are going to command.

DAY'S ROUTINE.—The day's routine will soon develop and cannot be a stereotyped thing. It will be determined to a large extent by local conditions. But in

all training camps some such model as the following will no doubt be followed:

REVEILLE:

First call, 5.30 a. m.

March, 5.40 a. m.

Assembly, 5.45 a. m.

At first call the non-commissioned officer in charge of quarters, or some other charged with that duty, will go through the barracks and awaken the men. After a short time this may be dispensed with.

MESS:

First call (followed by mess call), 5.55 a. m.

Assembly, 6.00 a. m.

Allow the men approximately 20 minutes for breakfast and the privilege of returning individually — this for purposes of attending to the calls of nature.

SICK CALL, 6.30 a. m.— Have the non-commissioned officer in charge of quarters put through this call; the sick will report to the orderly room, be entered on the sick report and marched to the hospital by the same non-commissioned officer. All men answering sick call should be questioned as to the nature of their trouble and its cause; men who are trying to dodge work should be caught up with. Care should be exercised in making out the sick report; be careful what you put on it and where you put it. The sick report will be treated further under "Paper Work."

MORNING INSTRUCTION:

First call, 6.50 a. m.

Assembly, 7.00 a. m.

Recall, 12.00 m.

Utilize this time according to the schedule laid down by higher authorities. It will no doubt be insisted that the schedule be closely adhered to; but this can be done without completely destroying individual initiative.

MESS:

First call (followed by mess call), 12.10 p. m.

Assembly, 12.15 p. m.

Allow 30 minutes for noon mess. The men may not consume it all; but judgment must be used in this matter. After mess have the company formed and marched back to barracks. This plan should be followed for a time, at least, particularly with "green" men purely for disciplinary purposes.

AFTERNOON INSTRUCTION:

First call, 1.20 p. m.

Assembly, 1.30 p. m.

Recall, 4.30 p. m.

Same general procedure as for morning work.

SICK CALL, 4.45 p. m.— When the sick report is sent to the hospital in the afternoon, it is customary to make a new entry for all men who are in the hospital. In this way a running account is kept and quickly referred to without running all through the book.

The time from recall to retreat at 5.30 or thereabouts can usually be used to advantage in cleaning up and getting ready for this ceremony.

RETREAT.— (Formal — on the parade grounds).

First call, 5.30 p. m.

Assembly, 5.35 p. m.

Retreat, 5.50 p. m.

MESS:

First call, followed by mess call, 6.00 p. m.

Assembly, 6.05 p. m.

SCHOOL CALL (except Saturdays), 7.00 p. m.

TATTOO, 9.00 p. m.

CALL TO QUARTERS, 9.30 p. m.

TAPS, 9.45 p. m.

At taps lights should be out and absolute quiet should prevail. This rule should be insisted upon from the very beginning of the training period. A check roll call is often taken at taps and the company reported

to the Officer of the Day. Likewise, the company is reported to the Officer of the Day at reveille, retreat and mess formations; however, these things are determined entirely by local conditions.

SUNDAYS AND HOLIDAYS.—Calls are $\frac{1}{2}$ hour later, except retreat, tattoo, call to quarters and taps. In case an entertainment is given on the post, taps usually follow its close by a half hour.

DETAILS for any day should be published at retreat formation the day previous; bulletins and notices should also be published to the company at this formation.

PAPER WORK.—Paper work in the Army is generally viewed askance. A certain amount of it is absolutely necessary, but the amount can be reduced by careful attention to the way in which the work is done. A good first sergeant and a good company clerk will take a load of trouble off the shoulders of the company commander in this respect; but usually these men must be trained. Instructions on the blank forms should be carefully read the first time a certain paper is made out. Attend to all paper work promptly and make a note of anything that cannot be handled immediately. Do not let anything get into the company files until it has been O. K'd. by the company commander or initialed by the officers. Have a basket for the company commander and one for the other officers where they may expect to find matters that are of interest to them. Get reports, requisitions and other papers in on time. Do not wait until they are called for. Establish a daily, as well as a monthly, system of doing things in the orderly room and then stick to it as nearly as possible. Have a file for:

1. General orders, post and W. D.
2. Special orders.
3. Memorandums, bulletins and notices may be included under this head.
4. Company orders.
5. Document file (copies of letters, etc.).

The needs for files will be determined largely by local conditions. The point is to have things where they can be found readily under an appropriate heading; and to have them accessible to others besides the company clerk. Keep a copy of everything, as nearly as possible, but do not clutter up your company files with unimportant items. Keep your orderly room looking as neat as possible.

MILITARY CORRESPONDENCE.—A very important feature of Army Paper Work. Neatness, brevity and clarity are to be sought — ceremonial forms are avoided.

References to Army Regulations: Paragraphs 225, 512, 776, 778, 779, 780, 786, 789, 790, 822 (g.o. 23 w.d.).

A letter consists of three parts; heading, body and signature. The heading consists of designation of the command, place and date, all placed in the upper right-hand corner. At the left, and with a margin of about an inch, should be:

From:

To:

Subject:

A double space should be left between these lines.

The body should be divided into numbered paragraphs, each paragraph treating of but one topic. The lines should be single-spaced, but a double space should be left between the paragraphs. The signature should be made without any unnecessary forms.

Any good treatise on this subject will show the proper forms for a military letter.

Indorsements follow the signature in succession on the same page or on added pages. They are very brief, follow a prescribed form and, if necessary, are paragraphed in the same way as the letter. Letters should

be made in three, four, five or six copies, according to destination. They should always be handled through military channels; time will be lost if you try to dodge it.

MORNING REPORT.—This is a complete record of daily events and should be kept with great care. It is submitted daily to the proper authority, checked and returned. Any standard work on this subject will show the proper method of making entries. Be sure to make entry of all events affecting your company, its numbers or condition. If there is no change, say so.

RATION RETURN.—This form is made out in duplicate for periods of from 10 days to a month. In case men join the company after the ration return has been submitted for a given period, one ration for each man for each day from date of joining to date of submitting next return, may be drawn on the next return. The same plan is followed in making deductions for men in the hospital or absent from the company. For ration allowances see a.r. 1202-1252.

SICK REPORT.—A commissioned officer of the company and the medical officer sign on one line following the last entry for the occasion. Neither may encroach on the territory of the other and both enter their opinions as to whether the sickness is in line of duty. No erasures are allowed.

DUTY ROSTER.—For any roster the key word should be "equality of all duties." It means the difference between contentment and dissatisfaction among your men. Keep an exact list of men available for every duty and detail them in exact rotation; adjust to complete satisfaction any little differences that arise. Let the men know that you want to give them a square deal and they will respond. The longest man off duty is the first man to be called. In the regular service the roster covers guard duty and other duties, notably kitchen, police and other fatigue work.

MONTHLY RETURN.—The form is self explanatory. Read the instructions on the blanks before filling them in. By keeping in the company a record of events you can easily fill out the return properly when the time comes.

SERVICE RECORD.—References in Army Regulations: Paragraphs 115, 118, 124, 135, 138, 938, 1337, 1361, 1451, 1535. Article 16.

The service record is a complete personal history of the soldier and follows him wherever he goes. It contains: a descriptive list, report of assignment, record of prior service, current enlistment, military record, record of allotments, clothing account and settlement, deposits, indorsements (this latter to give reasons for change of status or station of the soldier).

DISCHARGE.—Discharges are of three kinds: honorable, dishonorable and plain discharge. The first is on a white sheet and entitles the soldier to re-enlist; the second is on a yellow sheet and is given following sentence of a general court-martial; the third is on a blue sheet and is given on account of physical disability—it does not entitle the soldier to re-enlist.

FINAL STATEMENT, a.r., Art. 21.—The final statement is issued to every enlisted man upon his discharge unless he has forfeited all pay and allowances and has no deposits due him.

The final statement is not to be prepared on the typewriter. Money amounts shall be written in both figures and words. The final statement should show the amount due the soldier for: additional pay; clothing; deposits; pay detained; miscellaneous causes. It also should show the amounts due the United States by the soldier for various reasons. In addition it should also state the period covered by the last pay of the soldier.

Officers signing and certifying to the various entries are responsible.

MUSTER ROLL. a.r. ARTICLE 42.—The muster roll is made bi-monthly and great care should be taken

in its preparation to make it both correct and complete. All officers and enlisted men are taken up on the muster roll from the date of receipt of notice of assignment. The following are entered on the rolls:

1. Commissioned officers belonging to the organization, in order of rank.

2. Commissioned officers attached to the organization, in order of rank.

3. Non-commissioned officers in order of grade.

4. All others except musicians and privates, alphabetically arranged in order of grade.

5. Musicians.

6. Privates.

All names, except those entered by rank, are entered in alphabetical order with the last name first.

The names of enlisted men attached to the company are borne on a detachment roll. This is not true of officers attached to an organization, however.

Remarks should be entered according to the model which can be obtained from the Adjutant General's Office.

All changes should be noted which affect the status of the soldier. An excellent idea for retaining this data is to keep a separate card for each man and to enter thereon anything that affects his status.

PAY ROLL. a.r. 1315—1383.—The pay roll is made out monthly in triplicate, one copy being retained and two copies being sent to the Quartermaster. On the pay roll there are four certificates to be signed:

1. The commander of the organization examines the roll carefully and certifies that all entries are correct.

2. The inspecting and mustering officer signs certifying that all are present or accounted for — or notes exceptions.

3. The commanding officer witnesses the payment of each man and certifies to that effect.

4. The commanding officer certifies that the duplicate and triplicate are exact copies of the original.

NAMES.—The last name is entered first; *e. g.*, Smith, John A. But the soldier signs as follows: John A. Smith.

LOSSES.—The losses should follow immediately on the next line after the last entry. They include those by reason of: Discharge, transfer, retirement, desertion and the fact that the man has been dropped.

Each officer should check his knowledge and be sure that he knows the purpose of, and is familiar with the following papers: (References are to Army Regulations and to Adjutant and Quartermaster forms.)

- (1) Morning Report (a.r. 280).
- (2) Daily Sick Report (a.r. 280), (339 a.g.o.).
- (3) Duty Roster (a.r. 282), (339 a.g.o.).
- (4) Company Fund Book (a.r. 280), (452 q.m.c.).
- (5) Delinquency Record (a.r. 280), (509 q.m.c.).
- (6) Property Responsibility:
 - Quartermaster (a.r. 280), (501cc q.m.c.).
 - Ordnance (a.r. 280), (501c q.m.c.).
- (7) Descriptive List, Military Record and Clothing Account (a.r. 280), (29 a.g.o.).
- (8) Memorandum Receipts (a.r. 281), (448 a.g.o.).
- (9) Abstract Record of Memorandum Receipts (par. 1, g.o. 6, 1916), (448b a.g.o.).
- (10) Summary Court Records (a.r. 9570), (594 a.g.o.).
- (11) Statement of Clothing charged to Enlisted man (165b q.m.c.).
- (12) Abstract of Clothing (180 q.m.c.).
- (13) Company Target Records (307 a.g.o.).
- (14) Individual Clothing Slips (165 q.m.c.).
- (15) Files of Orders (a.r. 280).
- (16) Correspondence Book with Index (a.r. 280).
- (17) Document File.
- (18) Record of Rifles (p. 14, Ordnance Pamphlet No. 1965).
- (19) Record of Sizes of Clothing (g.o. 48, 1911).

- (20) Company Return (a.r. 811), (30 a.g.o.).
- (21) Muster Roll (a.g. 807).
- (22) Returns (a.g. 811).
- (23) Return of Casualties.
- (24) Pay Roll (366 q.m.c.).

As well as numerous other forms for special occasions which are not here listed.

Except for the morning report, sick report, duty roster, correspondence book and various files, practically all the afore-mentioned records are now kept at regimental headquarters instead of in the company orderly room.

CHAPTER 14.

Conferences.

(Time — 2 hours each day in afternoon.)

1. Know your subject and be thoroughly prepared.
2. Have an outline to refer to, showing main points you wish to cover.
3. Do not allow a man to give an entire chapter in reply to a question. Make your questions short and specific — and require answers to be the same.
4. Get every man on his feet at least once every day.
5. Have a laugh every little while — keep the men awake.
6. Vary your system of calling on men so that no one will know when he is likely to be called on.
7. Avoid reading to the men.
8. Require men to put things on the blackboard when possible.
9. In case of a conference for which no time has been given for preparation, use all possible schemes to get the points home without having either a lecture or a study period. Allot — a definite time and require definite results — *e. g.*, allow 10 minutes for a rough map showing the placing of a picket — 15 minutes for an outline of a certain chapter, etc.
10. Never forget that there are 2 sides to every conference — what you plan to give and what you plan to get. You must test the men to see how well they know the work but you must also make sure that every man knows it when he goes out even if he didn't when he came in.

Study.

The study period usually comes after a full day in the open, and the warm air and artificial light soon

make the most ardent soldier doze off into cat-naps. Something must be done to counteract these influences and keep the men on the job. The terror of the next day's conference will not do it, as that time seems safely distant, with all night ahead.

Assign the men three to five questions on the work to be studied, which will be asked in conference and which require a pretty general knowledge of the subject. Every man will then have a definite objective and a certain minimum of attainment for the evening. Or reverse the process and let each of the class write several questions about what they have studied. The following day let these questions, with the names of the men who asked them, be read before the class and answered. The effect of reading the name of the writer is to insure careful preparation of the question and study of the subject. A good question can hardly be asked without a basis of knowledge, and a foolish question condemns its author.

Another plan is to let the men, whenever possible, instruct the class. Announce that any man may be called upon to take charge, and the uncertainty will keep everyone studying. This plan will also give the men valuable practice in teaching others. Their periods of instruction, of course, must be limited, and unsatisfactory parts of their work reviewed before the conference is dismissed.

Another way to stimulate study is to have a short discussion, talk or quiz just before the close of the study hour, when the men, if left to themselves, will incline to look at their watches more often than at their books. A brief explanation of the work assigned, with emphasis upon a few especially important points, makes good use of this closing time, especially when the men are required to write down the points emphasized.

Syllabus: Small Problems for Infantry.

(References, f.s.r., p. 26-30, 33-39.)

First Problem: Advance Guard and Point:

A. Definition and Function.—Small patrol sent ahead from advance party for disclosing enemy's position and strength, in time for larger bodies to make suitable defensive and offensive dispositions. Function primarily warning; but to give specific information, it may have to fight and thus feel enemy out.

B. Principles:

1. Formed zig-zag; distance from advance party = ?
2. Controlled by leader of advance party.
3. Speed must be great enough not to impede the main column. Must not halt at first sign of enemy, nor go off on a flank.
4. Interest and co-operation of inferiors, by adequate explanation of situation and of individual duties ("repeats").
5. Rules for estimating numerical strength of the moving body of troops (cf., f.s.r., sec. 27).
6. Point as a "march outpost" (= ?) when the column is halted. Only then may the A. G. point make any lateral arrangement of its members (cf. 3 above).

Second Problem: Advance Guard Connecting File, cf., f.s.r., reference above:

A. Definition and Function.—Two men (usually) for liaison en route where elements too widely separated or roads too curved and wooded. Distance 200 to 5 yards apart.

B. Principles:

1. Constant touch with elements before and behind.

Second Problem — (*Continued*):

B. Principles — (*Continued*):

2. Relay both ways messages sent to or from remoter parts of the column. Speed and accuracy of signaling.
3. Guide to be forward in daytime, at night on the main body.

Third Problem: Advance Guard Flank Patrol, pp. 31-32:

A. Definition and Function.—For protecting a marching column from attack, by warning it on the basis of information gained in reconnaissance. Interval between men depends on circumstances.

B. Principles:

1. Start from near head of the column, *i. e.*, from smallest element in the advance guard that can afford to cut down its numbers.
2. Speed rather than safety, to keep abreast of own column and to force the enemy to disclose himself by firing on F. P. rather than on main body.
3. Sent to investigate suspicious areas, *e. g.*, in woods, behind houses.
4. Action in case of firing on main body; advance and counterfire, deployed.
5. Get-away man in rear of column.
6. *Stick to the job*: no wandering or chasing of enemy beyond range of column. Job is to warn and protect against flank attack.

Fourth Problem: Platoon as Advance Party:

A. Definition and Function:

Body of infantry, amounting to $\frac{1}{8}$ to $\frac{1}{2}$ the Support (depending on the number of cavalry ahead) cf., f.s.r., p. 28.

Fourth Problem — (*Continued*):A. Definition and Function — (*Continued*):

Duty.—To back up the point and the advance cavalry (if any) if fired upon; remove enemy bodies and other obstacles.

B. Principles:

1. Describe general mission to inferiors.
2. Explain individual duties to inferiors.
3. Send out point and connecting files.
4. Form in platoon; zig-zag.
5. Keep going; prosecute engagements briskly, not to delay main column.
6. Procedure under fire: deploys and drops, when fired upon; looks for enemy's direction and assigns target and range. Advance under cover if any, when fire light; when heavy seek to divert fire to you away from main body of advance guard to facilitate latter's disposition for advance to your support.
Seek to drive off a weaker enemy, and to hold off a stronger.
7. Speedy decisions. Value of imaginary situations, while on the march; and planning your commands.

Fifth Problem: Combat Patrol:

A. Definition and Function.—Contrasted with covering detachment, which is large enough to offer considerable resistance, the combat patrol is primarily to *Warn*, especially against flank attacks. Size varies widely because of looseness in definition, *e. g.*, 100 men might be *covering detachment* for a regiment, but a combat patrol for a brigade.

B. Principles:

1. Comparison of thin line versus thin column, regarding: (a) vulnerability, (b) fatigue, (c) tactical advantage, when en-

Fifth Problem — (*Continued*):B. Principles — (*Continued*):

- agement materializes, (e) control of movement and of fire.
- 2. Agent between advance and main body.
- 3. Attack any enemy of reasonable size that attacks main body.
- 4. Corn as concealment versus corn as obstruction to sight.
- 5. Vulnerability of charging cavalry.
- 6. Lieutenant as tactical chief, sergeant as disciplinarian, in a platoon; except when?
- 7. Messages concise, not ambiguous, written versus oral? Repeats.
- 8. Limitations of use of map. Vegetation changes; errors in contouring.

Sixth Problem and Seventh Problem: Two Pickets:

A. Definition and Function.—Outpost contrasted with advance guard in that former is stationed around a camp or bivouac, while latter precedes a marching column. To check enemy attempting to attack main body, and hold him till larger force is able to deploy. Consists of outpost reserve, outpost line of supports, line of outguards (pickets, sentry squads, and cossack posts), plus sentinels, patrols, etc.

Picket ordinarily merely warns of an attack, but may offer resistance.

B. Principles:

- 1. Smooth posting of outpost very desirable; influence of delay on spirits of men, after day's march.
- 2. Outpost support sends out pickets.
- 3. Picket sends out sentry squads, cossack posts, sentinels, etc.
- 4. Provisional dispositions by leaders of outguard elements; importance of good sketch; intrenchments?

Sixth and Seventh Problems — (*Continued*):B. Principles — (*Continued*):

5. Confirmation and alteration by higher officers; especially changes at night regarding layout and manning. Fire ineffective at night except at short ranges.
6. Roster = ?
7. Instructions regarding enemy's position and strength, and the friendly outguards to right and left.
8. Mode of numbering elements (from right to right). Arrangement for smooth withdrawal of each element upon stronger one.
9. Disposition of strangers; use for information.
10. Need of explicit arrangements in case of attack in day or night.
11. Sleep near arms.

Eighth Problem — Cossack Post and Sentry Squad:

A. Definition and Function:

1. Cossack Post: 4 men in charge of a corporal (usually) primarily to observe and warn; secondarily to keep concealed, and intercept strangers who might be useful to enemy or to us.
2. Sentry Squad: 8 men in charge of a corporal. Duties similar but strength is greater. Posts double sentinel.
3. Post important enough for a cossack post is often doubled into a sentry squad at night.

B. Principles:

1. Opportunity to "pick off" enemies ought to be ignored until position of c. p. or s. s. or of its supporting body has unquestionably been learned by enemy. Then fire away.

Eighth Problem — (*Continued*):B. Principles — (*Continued*):

2. *Stop* enemy's patrolling. Is as important as to *force* your own observation.
3. Advantages of s. s. over c. p. for night work: (a) strength, (b) sureness, (c) adequacy of observation before firing alarm.
4. Use of prisoners, and papers on dead bodies.
5. Value of imagining yourself in position of enemy commander in deciding what enemy dispositions you will combat him with.

Ninth Problem: Reconnoitering Patrol:

A. Definition and Function.— Gather information in the field. No resistance unless compelled. Concealment and flight rather than resistance by fire: opposite of "covering detachment."

B. Principles.

1. Judgment in deciding what equipment is appropriate to the particular patrol.
2. Sketch copies; contours as guides for concealed route.
3. Fight only in self defence.
4. How to question hidden sentinel without disclosing his position to enemy.
5. Judicious choice of cover in approaching destination.
6. Dating and placing of messages.
7. Rate of passage of troops: "Rule of 2-2-2."

Tenth Problem — Visiting Patrol:

A. Definition and Function:

Two men or more sent from supports and pickets liaison between adjoining out-

Tenth Problem — (*Continued*):A. Definition and Function — (*Continued*):

guards. More useful at night, because of reduced visibility of terrain between outguards.

1. Inform the sending body of conditions at sentinel posts.
2. Prevent enemy from penetrating lines between posts.
3. Exchange information between adjoining posts.
4. Take back captured strangers to commander.
5. Reenforce feeling of mutual support among the isolated sentinels.

B. Principles.

1. Keen sight and hearing; silence.
2. Need of signals. Both countersign and check — countersign.
3. Equipment; nothing that rattles or glistens.
4. Disposition: leader in front, because of need for quick decision.
5. Distance not over two miles even in most open country.
6. Danger of startling a friend sentinel by unwarned approach.

Eleventh Problem — Detached Post:

A. Definition and Function.— Posted where connection cannot be easily maintained with other elements of outpost. Sent usually by outpost reserve or by main body, and retires to them, rather than to the line of supports. Function same as element of outpost proper, — *observation, resistance, reconnaissance*; but less resistance than *warning*. May be as small as 2 men, or as large as a support, depending on location and importance of detached position.

Eleventh Problem — (*Continued*):

B. Principles.

1. Established under precautions, because of danger of enemy breaking between the main body and the detached post.
2. Entrenchment: what time of day? What other circumstances? Treatment of bridges? Night?
3. Requisitioning order: Need of payment; for justice, for military advantage later (reassure farmers through whose territory you will need to pass and keep supplied).

Twelfth Problem — Requisitioning Detachment or Patrol:

A. Definition and Function.—A patrol may have any mission: here it is sent to take (on payment) the provender designated. A.r.d. sent by commander with specific instructions is legal; a raid for booty illegal. (See f.s.r., sec. 290.)

B. Principles.

1. Preparation essential.
2. Sending of men singly or in pairs across open spaces.
3. Deliberate start on *wrong* road to deceive enemy scouts.
4. Not to fire unless obliged,—until return trip.

Thirteenth Problem — A Contact Patrol:

A. Definition and Function.—A small patrol sent out from a stationary body of troops, usually at night, to find out whether enemy is starting a retreat. (Compact formation in column.)

B. Principles.

1. Travel light, but prepare to spend some time lying still.
2. Route rear and parallel to a road, but not on it.

Thirteenth Problem — (*Continued*):B. Principles — (*Continued*):

3. Do not attack enemy patrols unless necessary.
4. Get through enemy line of observation and watch support or larger body.
5. Return together when you have definite information. Do not send single messengers.

Fourteenth Problem — A Small Outguard:

The principles used in 14 are same as those listed under 1-13; and should be clinched by assigning yourself the problem of completely arranging an outpost for a brigade to be encamped or bivouacked at some assigned position on the Hunter's Town sheet. Exchange solutions, for mutual criticism.

Examinations.

The following examinations, given at the second Plattsburg Training Camp, will enable students of military matters to form some idea as to where they stand in their grasp of the subject:

Plattsburg Training Camp:

1. Explain the "Position of the Soldier." (Par. 51, i.d.r.)
2. Being at parade rest, explain position of right foot. (Par. 53, i.d.r.)
3. Explain the "Hand Salute." (Par. 58, i.d.r.)
4. (1) Give length of full step (a) in quick time, (b) in double time.
(2) How is the full step measured? (Par. 60, i.d.r.)
5. Explain "Halt" from quick time. (Par. 70, i.d.r.)
6. Explain position of butt of rifle at "Order Arms" standing. (Par. 77, i.d.r.)
7. Explain position of left forearm at present arms. (Par. 78, i.d.r.)

8. At parade rest under arms (rifle), explain position of left hand. (Par. 90, i.d.r.)
 9. The squad being in line explain "Squad Right." (Par. 119, i.d.r.)
 10. The company in line, give commands and explain "To dismiss the company." (Par. 174, i.d.r.)
-

1. Being in any formation assembled, give commands and explain movements for deploying the squad as skirmishers. (Par. 124, i.d.r.)
2. When deployed as skirmishers (a) How do the men march? (b) How are the pieces carried? (c) Who is the guide? (d) What is the normal interval between skirmishers? (e) What is the length of the front of the squad when deployed at normal intervals? (Par. 124, i.d.r.)
3. In what formations are the loadings executed? (Par. 133, i.d.r.)
4. At the preparatory command for forming skirmish line, what does each squad leader do? (Par. 200, i.d.r.)
5. In what direction does a deployed line face on halting? (Par. 203.)
6. Being in skirmish line, explain the movement "Platoon columns." March. (Par. 213, i.d.r.)
7. What is the purpose of the advance in a succession of thin lines? (Par. 219, i.d.r.)
8. Name three classes of fire. Which class is normally employed in action? (Par. 241-2-3, i.d.r.)
9. Why is it necessary to have proper distribution of fire? (Par. 246, i.d.r.)
10. Explain briefly the functions of platoon leaders, platoon guides and squad leaders in the fire fight. (Par. 252, i.d.r.)

1. Explain the position of parade rest (without arms). (Par. 53, i.d.r.)
2. Being in the position of the soldier, explain the position of the heels, feet and knees. (Par. 51, i.d.r.)
3. Give the commands for and explain the execution of "Right Face."
4. Being at a halt, give the commands for moving forward in quick time and explain the execution thereof. (Par. 62, i.d.r.)
5. (a) Being in march in quick time, give the commands necessary to march in double time and explain the execution thereof. (Par. 63, i.d.r.)
 (b) What is the length of step and the rate of steps per minute in double time? (Par. 60, i.d.r.)
6. At "Right Shoulder Arms":
 (a) Explain the position of the trigger guard. (Par. 83, i.d.r.)
 (b) What is the position of the barrel? (Par. 83, i.d.r.)
7. In the rifle salute (right shoulder arms), describe the position of the:
 (a) Left forearm on first count. (Par. 93, i.d.r.)
 (b) Left hand on first count. (Par. 93, i.d.r.)
8. Explain the position of the left forearm on the second count of right shoulder arms from order arms. (Par. 83, i.d.r.)
9. The squad being in line explain "Squad right about." (Par. 121, i.d.r.)
10. Explain the execution of "Right by Squads," 2 March. (Par. 183, i.d.r.)

1. What are the two general classes of military information? (Par. 9, f.s.r.)
 2. What do you understand by the term "reconnaissance?" (Par. 11, f.s.r.)
 3. (a) Name the various kinds of patrols. (Note to Par. 23, f.s.r.)
(b) What are the advantages of small patrols over strong patrols? (Par. 24, f.s.r.)
 4. What governs the formation adopted by the patrol? (Par. 26, f.s.r.)
 5. What is a field message? (Par. 32, f.s.r.)
 6. (a) What is the function of an advance guard? (Par. 40, f.s.r.)
(b) What of a flank guard? (Par. 53, f.s.r.)
 7. (a) What is an outpost? (Par. 60, f.s.r.)
(b) How are the outguards classified? (Par. 64, f.s.r.)
 8. Define a successful march. (Par. 96, f.s.r.)
 9. What rules govern the halts of a column of troops on the march? (Par. 102, f.s.r.)
 10. (a) From a certain point off the road you observe a column of troops marching on the road. You can distinguish that these troops are infantry in column of squads. It requires 20 minutes for them to pass a given point. How much infantry is in the column? (Par. 27, f.s.r.)
(b) The day is still, no wind blowing, further to the rear you can see a broken cloud of dust extending in prolongation of the road but cannot see the cause. What does this indicate? (Par. 27, f.s.r.)
-

Harvard College. School of the Soldier:

1. Define depth, distance, interval, front, base, point of rest, deployment, pace. (i.d.r. definitions.)

2. (a) What is the guide of the leading subdivision, in column of subdivisions, charged with? (Par. 20, i.d.r.)
(b) What is the guide of the subdivisions in rear charged with? (Par. 20, i.d.r.)
3. What are orders, commands and signals. (Par. 31, 37, i.d.r.)
4. Describe position of the soldier or attention (without arms.) (i.d.r. 51.)
5. What are the rests? Describe each. (Par. 52, i.d.r.)
6. Describe about face. (Par. 57, i.d.r.)
7. (a) Being at a halt, or marching in quick time, to march in double time. Describe commands and how executed. (Par. 63, i.d.r.)
(b) Marching in double time, to resume quick time. Describe commands and how executed. (Par. 64, i.d.r.)
8. What are the rules that govern the carrying of the piece? (Par. 75, i.d.r.)
9. What general rules govern the execution of the manual of arms? (Par. 76, i.d.r.)
10. Give the rate per minute and length of the half step and full step in quick and double time. (Par. 60, i.d.r.)
11. What are the arm signals for: Column left, march; halt; as skirmishers, march; assemble, march; suspend firing; range, 250 yards; fix bayonets. (Par. 43, i.d.r.)
12. Explain the execution of the command "Right Dress." (Par. 107, i.d.r.)

School of the Squad:

1. To suspend firing: Give the commands and describe execution. Same, to cease firing. (Par. 149-150, i.d.r.)

2. Describe in detail the execution of "Squads Right." (Par. 119, i.d.r.)
 3. Give the commands and explain execution for taking intervals. How does it differ from taking distances? (Pars. 109, 110, 111, 112, i.d.r.)
 4. Describe in detail "Right oblique, March." (Par. 116, i.d.r.)
 5. Explain the use of "In place, Halt." (Par. 14, i.d.r.)
 6. When can the following commands be used:
Resume March. (Par. 14, i.d.r.) Oblique March. (Par. 117, i.d.r.) By the right flank, March. (Par. 71, i.d.r.) Take Arms. (Par. 114, i.d.r.)
 7. Describe by what commands and in what manner a squad is formed.
 8. (a) Being in line, give the commands and describe the movements for turning on a moving pivot.
(b) Being in line, give the commands and describe the movements for turning on a fixed pivot.
 9. Being in any formation, assembled, give the commands and describe the movements for deploying as skirmishers.
-

School of the Company:

1. Give the proper commands for the following movements:
 - (a) Company being in line, to march to the front in column of squads. (Par. 183, i.d.r.)
 - (b) Company being in line, to form column of squads to the flank. (Par. 178, i.d.r.)
 - (c) Company being in line, to form skirmish line. (Par. 206, 200, 202, i.d.r.)

(d) Company being in column of squads, to form line to the right so the leading squad shall be on the right of the line. (Par. 188, i.d.r.)

2. Being in line, to align the company. Give the commands and explain the movement. (Pars. 175, 107, i.d.r.)

3. The company having gone from line into column of squads by the command: "Squads right, March," state the position of the captain, two lieutenants and right and left guides. (Pars. 163, 168 and Plate II, i.d.r.)

4. Show by diagram: (a) A company of two platoons in column of platoons. (b) A company of three platoons in line of platoons. (Plate II, i.d.r.)

5. What commands are given to form the company?

6. (a) Who is the pivot in executing "Company Left?"

(b) Who is the pivot in executing "Left Turn?"

Military Science and Tactics.

MINOR TACTICS.

MAP: GETTYSBURG — ANTIETAM (HUNTERSTOWN SHEET).

First Problem: An Advance Party — Situation I:

Your battalion and the machine gun company occupy Center Mills, in enemy's country. The remainder of the Harvard Regiment is encamped two miles north of Center Mills. The Battalion has an outguard at J. Fohl, 1150 yards southeast of Center Mills. It is mid-winter; there is no snow, but the streams are frozen.

At 6.45 a. m., 1 Feb., 17, your battalion and the machine gun company are *hurriedly assembled, pieces are loaded, and the column, your company in the lead,*

is marched out of town, over the southeast road. Your captain calls the *officers and non-commissioned officers* to the head of the company and gives the following verbal order:

A Blue force, estimated at one battalion with machine guns, is marching north from Granite Hill Sta. Blue patrols have been reported in vicinity of Henderson meeting house (700 yards north of Hunterstown). There are no Red troops south of here. Our battalion and the machine gun company are going to take up a position on the 712-707 hills, which flank this road, about 3 miles south of here. This company will be the advance guard. The main body, which is the rest of our column, follows at 600 yards. Lieutenant Allen, your platoon (1st) and the second platoon will constitute the ADVANCE PARTY. The third and fourth platoons will form the SUPPORT, and will follow the advance party at 300 yards. Here is a map for you. Follow this road (pointing and indicating on map) through J. Fohl — 554-534 — Bridge S. H., to crossroads 666, where you will halt and establish a MARCH OUTPOST. I will be with the support. When we reach the outguard at J. Fohl the column will halt and the advance guard will move out. Posts.

The column halts at the outguard. You are Lieutenant Allen.

Required:

Your instructions, and dispositions in detail.

Situation II:

The *advance party* has just cleared roadfork 534 when it is fired upon from the woods along the stream about 500 yards southeast. There are probably 20 rifles firing upon you. The enemy's fire is well-directed. The point has crossed the first bridge, 300 yards south of 534. The *support* has halted; but is not under fire.

Required:

Your instructions and dispositions.

Second Problem: An Advance Guard Point — Situation I:

The situation is the same as in the First Problem.

You are the commander of the point.

Required:

Your instructions and dispositions as the *point* clears the outguard.

Required:

The *point* has just crossed the first bridge 300 yards southeast of 534, when you hear firing and observe that the *advance party* is being fired upon from the woods directly east of you. A few moments later you note a few dismounted men crossing the island about 400 yards to the east. The firing has ceased.

Required:

Your instructions and dispositions.

Situation III:

The *advance guard* has resumed its march. When the point reaches Bridge S. H., it is fired upon from the woods 400 yards to the east. About ten cavalymen are hurriedly mounting, others are already riding into the woods.

Required:

Your instructions and dispositions.

Third Problem: An Advance Guard Flank Patrol — Situation:

The situation is the same as in the *First Problem*, and follows *Situation III, Second Problem*.

When the *advance party* is two hundred yards from the roadfork where unimproved road leads northeast, about 600 yards southeast of Bridge S. H., Lieutenant Allen gives the following instructions to Corporal Adams, 3d Squad:

Corporal, about fifteen Blue cavalry have been driven back through those woods (pointing out woods to east). When we reach the roadfork in front of us take your squad and comb the woods until you reach southern

edge. From there go east until you observe the crossroads (616) which are about 1200 yards beyond. Return over first improved road running southwest to the crossroads (666) about $1\frac{1}{2}$ miles south of here and just under the hilltop, where you will rejoin advance party.

You are Corporal Adams.

Required:

Your instructions, dispositions, and route of the patrol.

MAP READING. VISIBILITY PROBLEMS.

MAP: GETTYSBURG — ANTIETAM (HUNTERSTOWN SHEET).

NOTE.— *Observation points 707 and 712 are the hills referred to in the First Problem under Minor Tactics.*

Where one point is invisible from another, state points of interference.

Problem 1. Can a sentinel standing at 707 see the roadfork 535 (about 1500 yards south)?

Problem 2. An enemy patrol is marching north on the 544-616 road, and has crossed the stream (750 yards north of 544). Can this patrol see the Red outguard at 707 from any point between stream and crossroads 616?

Problem 3. Can the sentinel at 712 see the roadfork 581 (1850 yards southwest from 712)?

Problem 4. Can the sentinel at 712 see the crossroads 561 (about 1200 yards southeast)?

General Situation — Hunterstown Sheet.

The *Harvard Regiment* camps the night of May 31-June 1 on Opossum Creek just west of Friends Grove S. H. (A-7) in hostile territory. The regiment is part of a brigade, the remainder of the brigade being in camp one day's march north of Center Mills.

Problem I: An Advance Guard Point:

At daylight of June 1st the regimental commander receives the following message from brigade headquarters: "Our aeroplanes report a large force of the enemy near Hunterstown. Move at once on Hunterstown. Develop the strength of this enemy and locate his exact position. I will send reinforcements to you by motor-train if necessary."

Officers call is sounded, and this information transmitted to all the officers of the regiment. The *First Battalion* is designated as *advance guard* and ordered to move out at once by crossroads 554 and 561, and road forks 535 and 552 towards Hunterstown. Major A, commanding the First Battalion, designates the first two platoons of "D" company as advance party and C company and the remainder of D company as support.

Lieut. X, commanding the advance party, calls up all his non-commissioned officers and explains the situation to them. He then says: "Sergeant Mason, take 4 men and move out on that road (pointing) as the point. At crossroads and road forks semaphore W.W. and I will indicate the direction. The remainder of these two platoons will be the advance party. I will be with it. Move out."

You are Sergeant Mason.

(a) What instructions and information do you give the point before you reach crossroads 554?

After passing crossroads 561 about 300 yards one of your men reports about a squad of hostile cavalry on the road south of road fork 544, 1500 yards east of you.

(b) What do you do?

Problem II: An Advance Guard Connecting File:

Situation as in preceding problem.

After the advance party has moved out about 100 yards, Captain Y, commanding the support, says: "Smith, you take Jones and move out as connecting file." After Smith and Jones have moved about 100

yards, he says: "Donnelly, you take Burke and move out as connecting file." You are Donnelly.

(a) What instructions do you give Burke before reaching crossroads 554?

After passing crossroads 561 you go about 150 yards without seeing the connecting file in rear of you.

(b) What do you do?

Problem III: An Advance Guard Flank Patrol:

Situation as in preceding problem.

On arriving at crossroads 561 Lieut. X commanding the advance party calls up Sergeant Clifford and says: "Sergeant, the point has just reported a squad of hostile cavalry about a mile down this road (pointing toward road fork 544). Take *your squad* and scout down this road. I will take the next road to the left leading to Hunterstown. Rejoin me on that road.

You are Sergeant Clifford.

(a) What formation do you adopt for your patrol?

Nothing happens until you arrive near road fork 544, when you hear firing from the woods southwest of you. This fire is not directed toward you. There is evidently about a squad firing. You can see no enemy in any direction.

(b) What do you do?

Problem IV: Platoon as an Advance Party:

General situation same as before.

You are Lieut. X commanding the advance party. You have arrived near the small orchard southeast of road fork 535. A sharp fire is suddenly opened from the woods to the southeast, apparently from a *squad or small platoon*.

(a) Give your orders and dispositions.

After firing about a minute the fire of the enemy stops. You move out into the road and can see no sign of your point or connecting files. The support is closing up on you.

(b) What do you do?

Visibility Problems:

(a) Can a man on hill 712 see a man at crossroads 554 in Hunterstown? (Disregard trees.)

(b) A man stands at the point where contour 680 crosses the road followed in above problem, just south of hill 707. Where does the roadbed first become invisible?

MAP: GETTYSBURG — ANTIETAM (HUNTERSTOWN SHEET).

First Problem: A Connecting File — Situation I:

The Harvard Regiment is in camp in hostile country the night May 1-2 in the corn field 1000 yards east of Boyd S. H., just northeast of cross roads 488. The line of outguards extends approximately through Boyd S. H., Hill 527, McElheny.

At 1.00 a. m., May 1st, the regimental commander receives the following telephone message from brigade headquarters at Gettysburg (just off the map to the south)—An enemy force estimated strength one regiment is in camp 6 miles north of Center Mills. His patrols were seen yesterday by our advance cavalry near Guernsey and Center Mills. It is reliably reported that this force will march by Center Mills and Guernsey on Biglersville to-morrow morning to destroy a large amount of rolling stock at that point. Move at once toward Center Mills to stop and drive back this force.

Officers call is sounded. The situation is explained to the officers and they are told to have their companies ready to move at 2.00 a. m. The 1st battalion is designated as advance guard.

The advance guard is directed to move across the field to road fork 511 thence north by the main road. The *first platoon* of "A" company is designated as advance party. "B" company and the remainder of "A" company form the support. As the advance party moves out Captain Smith commanding the support, says to

Private Long, "Long, you and Williams move out as connecting files. This is a dark night so be careful to keep connection both front and rear." Before Long is out of sight, he says, "Scott, you and Hunt move out as connecting files following Long." You are Scott.

Required:

(a) What instructions do you give Hunt?

(b) What do you do up to the time you reach the main road at 511?

Situation II:

After you have passed road fork in *Table Rock* about 100 yards you notice that Hunt who has been watching to the rear does not seem to be alert. You look back and can see no sign of the connecting file in rear of you. It is still dark.

Required:

What do you do?

Second Problem: An Advance Guard Point — General Situation same as in Problem I:

Sergeant Hill and four men constitute the point. The situation has been explained to Sergeant Hill by the advance party commander.

About daylight the point arrives at crossroads 600. A sharp fire evidently from about a squad is received from the house on the rise 500 yards north along the road. You are Sergeant Hill.

Required:

What do you do?

Third Problem: An Advance Guard Flank Patrol — Situation I — General Situation same as Problem I:

Up to daylight no flank patrols have been sent out. When the support reaches *Table Rock* the support commander calls Corporal Bell and says to him "Corporal take your squad as a flank patrol up this road to the right. Take the left hand road at the first two road forks and follow the road past the church and school-

house until you reach this road again about $1\frac{1}{2}$ miles north of here. Report every thing you have seen when you rejoin. Your squad consists of seven men besides yourself.

Required:

(a) The disposition of your squad on the march.

(b) What do you do when you hear the firing near crossroads 600?

Fourth Problem: Platoon as Advance Party — Situation — General Situation same as in the First Problem:

When you arrive at a point about 200 yards south of hill 646 you hear firing 1000 yards north of you. You cannot see who is firing nor can you see the point. You are Lieutenant Clark commanding the advance party.

Required:

What do you do?

Visibility Problems:

(a) When the point arrives at hill 647 can it see the crossroads 610 to the northeast?

(b) When the flank patrol reaches Benders' Church crossroads can it see an enemy patrol at the house midway on the road 534-554 one mile to the northeast?

(c) Looking north along the Center Mills road from hill 647 where does the road first become invisible?

MAP: HUNTERSTOWN SHEET.

General Situation:

The Harvard regiment encamped on the night of July 12-13 at Biglerville (B-8) in hostile territory. The remainder of the brigade of which the regiment is a part is in camp 5 miles west of Biglerville.

Problem I:

At daylight, July 13, the regimental commander receives the following message from brigade headquarters:

"It is reported that the enemy is in force near Heidlersburg. Move on Heidlersburg at once; locate the position of the enemy, and develop his strength. Reinforcements will be sent you, if necessary."

This information is transmitted to all officers of the regiment. The First Battalion is ordered to move out at once as advance guard on Biglerville-610-582 road toward Heidlersburg. Major Dunn, commanding First Battalion, designates the first two platoons of C Company as advance party, and D Company and the remainder of C Company as support.

Lieut. Gibbs, commanding the advance party, explains the situation to his non-commissioned officers, and then orders:

"Sergeant Dow, take four men and move out on that road (indicating road to Heidlersburg) as point. The remainder of these two platoons will be the advance party and will follow you at 200 yards. I shall be with it. Move out."

You are Sergt. Dow.

How do you place your men, and what information and instructions do you give the point before you pass the orchard east of Biglerville?

Situation 2:

You are still Sergt. Dow.

The point has reached crossroads 582. You are informed by a farmer living at crossroads 582 that about half an hour before there were some soldiers half a mile north of 582 on the road to Center Mills. He says he does not know where they went.

What do you do?

Problem II:

The advance party has arrived at crossroads 582. Information has come to Lieut. Gibbs, both from the point and from the farmer direct, that Red Soldiers have been seen on road to north leading to Center Mills. Lieut. Gibbs on arrival at 582 sends out a squad under

Sergt. Jones to patrol north on the Center Mills road half a mile, then east by farm road to corner, then by fence south of house and barn to Opossum Creek and down creek to main road again.

The advance party then proceeds about 300 yards easterly from 582, when the point signals "Enemy in small numbers in creek bottom due north."

- (a) What does Lieut. Gibbs and the advance party do?
- (b) What does he tell the point to do?
- (c) What does the flank patrol under Sergt. Jones do?

Problem III:

Because of the action taken in Problem II the Reds have ceased to menace the left flank of the advance guard:

- (a) What does the advance party and its commander do?
- (b) What does he tell the point to do?

Another Situation — Problem IV:

Enemy is in the vicinity of Hunterstown. Your brigade has marched south through Guernsey to road fork 610, and has turned east, and is about to camp in grass field north of road 610-582, 1-3 of a mile west of 582. Your battalion is to form the outpost. You are its major.

Where do you post:

- (a) The outpost reserve?
- (b) The outpost supports?
- (c) The outguards?

(NOTE: The sector up to and including the road Center Mills-554-534-Bridge S. H. is covered by another brigade to your left.)

Problem V:

On the same general scheme as in Problem IV. You are Sergt. Robinson of Support No. 1. You are ordered by its commander to move out with 3 squads to form a

picket, outguard No. 1, putting out observation posts on the road about half a mile south of the support.

- (a) State what directions you give to your picket and how you move to your position.
- (b) Where do you post the picket and its observation posts?
- (c) What orders and instructions do you give on arrival at the place selected?



CHAPTER 15.

Trench Warfare.

General Principles.

1. Defense may be made in depth by all organizations, down to and including the platoon, or it may be made laterally.

2. The smallest active segment, be it only three men, must have a chief and a second in command, who is responsible for the proper upkeep and defense of the segment. All occupants of active segments must know all instructions which should be simple.

3. Any troops in charge of a portion of trench must never abandon it, no matter what happens, even if surrounded.

4. All ground lost must be retaken at once by immediate counter attack launched by the unit which lost the ground. As a matter of fact a counter attack is difficult for a platoon or company; it is really necessary for it to be made by a battalion.

5. Each company must provide for emplacements for mine throwers to be served by the artillery and for pneumatic guns to be served by their own men.

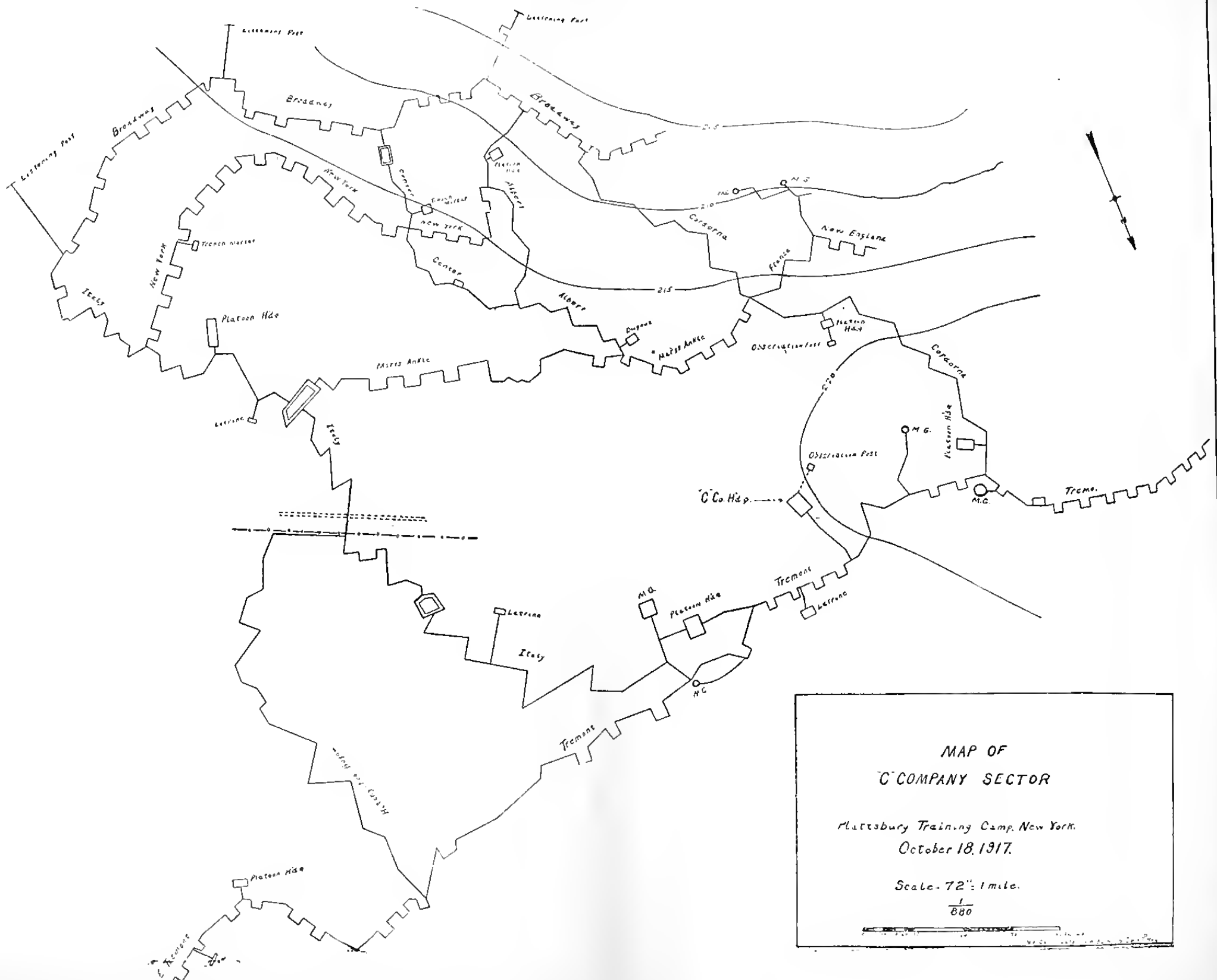
Instructions to be Issued by Battalion Commander.

1. Disposition of companies in sector assigned (best done by sketch showing sectors assigned to companies).

2. Special orders to companies (concerns field of fire to be obtained not only in own sector, but also in those adjoining it).

3. Improvement of defense. (Brief reports from company commanders to be followed by work being done on order of battalion commander after inspection.)

4. Organization of watching (not sentry duty) (by company commander under supervision of battalion commander).



MAP OF
C COMPANY SECTOR

Plattsburg Training Camp, New York.
October 18, 1917.

Scale - 72" = 1 mile.
 $\frac{1}{800}$

5. Organization of observation (not sentry duty) (by company commander under supervision of battalion commander).

6. Organization of supply (procuring, routing, etc., of tools, ammunition, food, water, etc.), (by company commander under supervision of battalion commander).

7. Organization of liaison (communication) (runners, telephone, telegraph visual signaling, pigeons, etc., by company commander under the supervision of battalion commander). *All telephonic communication must be in code.*

8. Organization of supplies to include amounts to be expected daily from the rear.

9. Knowledge of enemy must be imparted to company commanders in order to assist them in making their dispositions.

10. Frequent reports to be made of existing conditions at the front for information of higher commanders.

11. Lateral defense of boyaux must not be overlooked.

12. Wide turning movements are not possible. Enveloping movements are possible only on local attacks against small portions of the hostile line after it has been pierced. All main attacks are confined to purely frontal attacks.

13. The most important obstacle is barbed wire entanglements.

14. Communication (liaison) between and co-ordination and co-operation of, the different elements of a command is of the utmost importance.

15. Artillery co-operates more closely than ever with infantry. Its reconnaissance officers accompany infantry lines in order to obtain information. *There is a certain number of artillery observers attached to each battalion of infantry.*

The general method of attack is to smother the defense with a torrent of explosive shells, kept up incessantly for one or more days, and shatter the defense so they will offer but slight resistance to the infantry:

then rush forward with the infantry and seize the positions while the enemy is demoralized, and consolidate them before reenforcements can be brought up.

The artillery bombardment is necessary to prepare the way for the infantry advance. It has for its objects:

- (1) To destroy the hostile artillery, wire entanglements and infantry trenches.
- (2) To produce curtains of fire and prevent bringing up reenforcements.

Light guns are assigned to EACH BATTALION OF INFANTRY, subject only to orders of regimental and battalion commanders concerned.

Save under exceptional circumstances the light gun is always attached to the Machine Gun Company for the attack.

The essential role of the light gun is to destroy with direct fire the visible machine guns; they are employed separately and not grouped.

The infantry is divided into two classes: Holding troops — and attacking or shock troops. Holding troops are those doing routine or trench duty; shock troops are picked organizations of young and vigorous men and are kept in camps well behind the battle front. Holding troops are two weeks in and two weeks out of the trenches.

All specialist groups, *i. e.*, Machine Gun Companies, etc., are officered, allowing company and battalion commanders to concentrate them, if the situation requires.

They play the normal part in combat if they do not receive special instructions.

Attack of a Defensive Position.

Unity of command in depth must be preserved everywhere, unless there is an imperative reason for doing otherwise.

The front of each regiment should be divided between two or three battalions.

Each battalion commander having to look after a front of from 500 to 600 yards, can exercise efficient control of his command.

In preparing for an assault, seniors must take steps to organize it and make all necessary preparations themselves, and not leave all the responsibility with the juniors.

In the assault each unit must know its special task beforehand, and it should be rehearsed in rear of the line of trenches. Each commander must know the exact time he is to start and must start on time.

The first waves of men are placed at 4 or 5 pace interval. Chief of section can command only a front of 80 to 100 paces and it is necessary to form the section in two (2) waves. The first containing the grenadiers and automatic riflemen, the latter in the center. The second wave contains the riflemen and rifle grenadiers, the latter in the center.

If the terrain is cut up by woods, villages, etc., the proportion of grenadiers may be increased by taking them from the sections in support and the automatic riflemen sent back to the second wave.

If the distance to cross exceeds 300 or 400 yards, the number of automatic riflemen should be increased.

Two or three sections are usually placed abreast on the company front, which thus covers two to three hundred yards.

The support sections follow the leading sections of their company at about 50 yards, marching in two lines, if possible in two lines of squad columns at 20 yard intervals.

The first wave of the support is usually formed of the one-half section of specialists.

The echeloning of the specialists in front is also the most favorable formation to progress by rushes in a terrain cut up by shell holes.

The chief of section is between the two (2) waves of his section.

The captain is usually in front of the support sections.

The support sections are closely followed by a powerful line of machine guns, which are thrown into the fight when needed to reenforce the leading units.

"Trench Cleaners" usually march immediately after the leading sections and may be taken from the support sections. They are armed with pistols, knives and hand grenades.

The captain can use his section complete, or take out the specialists and use them for a particular purpose.

The specialists carry only the weapons of their specialty and have their loads lightened. The ordinary riflemen carry the usual packs and equipment.

Officers no longer lead the assault, but direct it. They are equipped with the rifle and bayonet, the same as the enlisted man.

Each unit of the first wave of the attack is given a definite objective. Different waves must not break upon the first wave.

Fire is opened by the assaulting troops only at short ranges, the advance being protected by a curtain of artillery fire. The advancing line makes use of shell holes and all other available cover.

When the first section reaches its objective it is joined by the half section of riflemen; it immediately organizes the captured ground.

Attacking From Trenches.—The commanders of brigades and battalions, with the commander of the artillery detailed to support them, study on the ground the artillery plan so far as it affects them. Immediately after the advance of the infantry begins, the artillery supporting it commences an intense bombardment with the object of forcing the enemy to take cover. At the moment laid down in the table of artillery fire the barrage lifts clear of the trench and the infantry rush

in and capture it. The infantry must be taught that their success depends upon their getting within 75 yards of the barrage before it lifts, in order that they may reach the trenches before the enemy can man them. The secret of a successful assault is exact synchronization of the movements of the infantry with those of the barrage.

The pace of a barrage depends, to a certain extent, on the pace of the infantry, which varies with the condition of the ground, the length of the advance, the number of enemy trenches to be crossed, etc. It may be from 15 to 75 yards per minute. The pace of the barrage should be quicker at first, and should gradually slow down as the men become exhausted, in order to give them time to get close to the barrage and pull themselves together for the final rush.

In an attack each unit must have sufficient driving power in itself to carry it through to its objective and enable it to hold its ground when it gets there. When a number of trenches have to be carried, considerable depth will be required, and the frontage must be reduced. A brigade usually has a front in attack of 250 to 350 yards, but this may be increased to 1,000 or 1,200 yards.

A battalion should have a front of 250 to 350 yards. The battalion must be organized in depth in a series of waves. Two companies are usually put abreast in the first line and the others in the second line. Each company in both lines attacks in column of platoons at about 50 yards' distance, with intervals of three to five paces between men, so there would be eight lines of waves, of two platoons each. The 8th and 16th platoons, the two in rear forming the eighth wave, are usually not employed in the attack, but are left behind as a nucleus to form on in case of heavy casualties.

The front line must not be less than 200 yards from the enemy's front line.

The leading two or three waves are likely to meet machine gun fire, and generally move in extended order. Not more than two waves can be accommodated in one trench. Subsequent waves will move in line or in line of section columns in single file. Russian saps must be run out as far as possible across "No Man's Land" to be opened up immediately after the assault, as approach trenches. Ladders or steps are necessary to assist the leading waves in leaving the trenches, as they must move in lines. Provision must be made for bridges over the first line trenches for the rear waves. In the original assault line will be more suitable for both leading and rear waves. In later stages it is better for the rear waves to move in small and handy columns. In the original assault the distance between waves may be 75 to 100 yards; in later stages they may follow each other at 50 yards.

In the original assault, zero, or the time for the assault to begin, may be fixed for the moment at which our barrage lifts from the enemy front trench, the infantry timing their advance so as to be close under our barrage before it lifts. In the later stages zero must be the moment at which our barrage commences, and this commencement will be the signal for the infantry to leave their trenches. Each wave is assigned its own objective. All watches must be synchronized in order that all units may start off at the appointed time.

The first wave is composed of bombers and rifle grenade men, and attacks the enemy's first line of trenches. It must go straight through to its objective, following the artillery barrage as closely as possible. The second and third waves, composed of riflemen with bayonets and Lewis guns, re-enforce the first wave after the latter has occupied the enemy's first line trench, and attack the second line trench. The fourth wave takes up tools, ammunition and sand bags and assists in consolidating the line. The fifth wave is a mopping-up party to clear the enemy's dugouts. The sixth wave comprises bat-

talion headquarters and has two Lewis guns, kept for a special purpose. The seventh and eighth waves, if used, seize and consolidate the enemy's third line trench.

Bombing squads (1 non-commissioned officer and 8 men) are on the flank of each attacking wave. Battalion bombers are assigned a special task.

All movements must be over the top of the ground. The pace throughout should be a steady walk, except for the last 30 or 40 yards, when the line should break into a steady double time, finishing up the last 10 yards with a rush.

Barrage is continued 20 or 30 minutes after the objective has been reached.

Mopping parties must be trained with great care under selected officers. They should always wear a distinguishing mark. They must at once dispose of any occupants who may have emerged from their dugouts, and picket the dugout entrances.

The ultimate unit in the assault is the platoon. It must be organized and trained as a self-contained unit, capable of producing the required proportion of riflemen, bombers, rifle bombers, Lewis gunners, and carriers, all trained to work in combination.

Assaulting troops should have twelve hours of daylight in the trenches before the assault begins, to enable them to get acquainted with the ground and get some rest. All ranks must be given a hot meal, including hot tea or coffee, before the assault.

Take every precaution to prevent the enemy from realizing that the assault is about to take place. Bayonets must not be allowed to show. No increase in rate of artillery fire. No unusual movements must be made in the trenches, and there must be no indication of the impending assault until the barrage is dropped.

When the trench has been taken, it should be consolidated at once to prevent counterattack. To protect this consolidation, throw out an outpost line, the posts consisting of one non-commissioned officer and 6 riflemen

with a Lewis gun, about 150 to 200 yards apart and 100 to 300 yards beyond the line. These posts should be established in shellholes, which are to be converted into fire trenches, protected by wire entanglements, as soon as possible.

Approach trenches toward the enemy should be blockaded and hand and rifle grenadiers posted to guard them. The main captured trench should be converted at once into a fire trench facing the enemy. If it is badly knocked to pieces, a new trench may be constructed 40 or 50 yards in front of the captured line. The commander must reorganize in depth to provide supports and reserves for counterattacks. Situation reports should be sent back frequently. Rough sketches are better than messages.

Tanks follow infantry as closely as possible to deal with strong points. They are employed in sections of four.

Machine guns may be used to provide covering fire for attacking infantry, cover its withdrawal if the attack fails, fill gaps in the assaulting lines, assist in the consolidation of positions and repel counterattacks.

Lewis guns are of great value in knocking out hostile machine guns. They usually move on the flanks of the second wave of assault. Later they are used to back up patrols and to hold the outpost line while the garrison line is being consolidated.

As soon as consolidation begins, wire entanglements should be constructed. Every effort should be made to secure the objective against recapture. Any men available should be used to continue the offensive.

All commanders down to and including company commanders must keep some portion of their command as a reserve. The company commander needs his reserve to work around points which are holding against the leading lines, to protect his flanks in case the companies on his right and left are delayed in their advance, and to exploit his success and gain ground to the

front. He must keep it well in hand behind the company.

Battalion reserves must start with the assaulting column and get across "No Man's Land" as soon as possible; they must not get out of hand. Such a reserve is usually checked in the vicinity of the enemy's front line trench, where it can be thrown in to assist the advance or extend a flank as needed.

The brigade reserve is kept well in hand just clear of the friendly front line and support trenches. Reserves of companies and battalions must start moving over the top of the ground with the rest of the assaulting troops.

Defense of Trenches.—The latest methods consist in constructing, supporting and strong points at the most favorable points to be held, such as villages, woods, etc. These are separated by intervals not too great for mutual support. They are of such resisting power that they must be taken before the attack can progress. In the intervals between them fire and communicating trenches are constructed, but these are only held lightly. Dummy trenches may be placed in these intervals. Lines of the various works are so traced that they bring enfilading fire on troops attacking adjacent positions. The lines need not be continuously occupied, but the obstacles extend in an unbroken line along the whole front. Wire entanglements are set in front of important positions in belts 20 feet wide, in two or three rows, each 20 yards apart.

Each supporting point usually is occupied by a battalion, and consists of a series of trenches formed into strong points, each held by a garrison of one or more platoons or a company. The supporting points are from 600 to 800 yards in depth and have a front of 600 to 1,000 yards. The first line of strong points is occupied by one or two companies in firing and cover trenches, while the remainder of the battalion

occupies the support and reserve trenches. Bomb-proofs are built along the cover trenches and are connected with the firing trenches. Approach trenches are protected on both flanks by wire entanglements. Strong points in support and reserve trenches are prepared for an all-around defense and divided into two or more separate strong points by wire entanglements.

A body of infantry attacked is to oppose to the assailant its high powered weapons, machine guns, automatic rifles, rifle grenades and hand grenades and to reserve for the counter attack the grenadiers and riflemen. There is always one line upon which the resistance must be made with the greatest energy; for its defense the following methods have been found successful. Machine guns should be placed where they can secure the best flanking fire, and every one put out of action should immediately be replaced by an automatic rifle. If machine gun barrage fire is to play its role successfully at the moment of assault, the guns must survive the bombardment. Their protection is secured by placing them under shelter during the bombardment and making their emplacements as nearly invisible as possible. They should be echeloned in depth as far as practicable. They are generally placed in re-entrants of the firing trenches and cover the intervals between the adjoining supporting and strong points. Where the ground will permit they are often placed in concealed positions 20 to 30 yards in front of the trenches, to break up attacks made by hostile infantry. Not too many should be placed in the front line, and they should be echeloned in depth so as to confuse their disposition. The value of machine guns depends on the possibility of using them suddenly for brief periods, and in using them as long as they are effective. Machine guns disposed for flanking fire must be well covered by grenadiers; this is also true of automatic rifles.

Automatic rifles, rifle grenades and hand grenades are used to constitute a barrage to keep back the enemy. The entire front should be defended by a barrage of hand grenades, while the barrage of automatic rifles and rifle grenades is superposed farther to the front, up to 400 yards.

All riflemen and those grenadiers not employed in forming barrages are reserved to make a counterattack.

Companies on the second line operate on similar principles; machine guns, automatic rifles and rifle grenades are arranged so as to cover every portion of the first line that might be invaded. After a short preparation by fire from these, the grenadiers and riflemen make the counterattack.

The captains in charge of the two lines are responsible for the arrangement of the machine guns, automatic rifles and rifle grenades, the distribution of barrages and the distribution of groups for the counterattack. The real strength of the defense consists, not in holding the fire and cover trenches, nor even the support trenches, but in holding the supporting and strong points until the counterattack can be launched.

Liaison.—The question of liaison in battle is of the utmost importance, and complete coordination of the different arms is absolutely necessary. Each battalion sends an officer or non-commissioned officer and a cyclist to the colonel, and each colonel sends a soldier to the battalion commander.

The principal means of communication are the telephone, telegraph, wireless, aeroplane, mounted messengers, autos and motorcycles; and at the front runners, visual signals, rockets and carrier pigeons.

Each battalion commander is connected by telephone with each company commander, with the artillery observers, with the artillery commander, with his own colonel and with the adjacent battalions on either side.

The signallers of assaulting companies move with the company commander. All signallers should be

given a special training in repeating a message several times to a known back station which may not be able to reply forward.

At the commencement of the assault the pigeons and pigeon carriers must be kept back at battalion headquarters, and sent forward as soon as the position has been gained.

Runners can be relied upon when all other means fail. They must be trained with their companies. Runners should be lightly equipped and wear a distinctive mark. They must be familiar with all the principal routes to all the principal centers within their battalion sector. The quicker they go the safer they are. Company and platoon runners must go forward with their respective commanders. Messages to be carried long distances will be relayed. Never send a verbal message by a runner; ignore any received; all messages must be written.

Company and battalion commanders must be prepared to assist artillery liaison officers in getting their messages back. Liaison officers must be exchanged by all the assaulting battalions with the battalion on either flank.

Trench Orders.—(Battalion): Trenches are usually divided into a certain number of bays; the number of men to defend these bays depends upon the length of trench allotted to each company. Each section is detailed to guard a certain number of bays.

Non-commissioned officers and men must always wear their equipment by day and night. Every company will "Stand To" arms daily one-half hour before dusk and one-half hour before dawn, and will remain until dismissed by the company commander.

The enemy's trenches are so close that it is very important for the men to have their rifle sights always at battle sight, so that there will be no necessity to alter their sights in case of alarm. By night all

bayonets are to be fixed and half of the men on duty in the trenches are to be sitting on the firing platform with their rifles by their side. In case of attack, especially at night, it should be impressed upon the men that they fire low.

Section commanders are responsible that the men under their command have sufficient standing room for the purpose of firing over the parapet. They must have a clear field of fire, and not only be able to see the enemy trenches but the ground in the immediate vicinity of their trench. When making new trenches parapets should be at least five feet thick at the top in order to be bullet proof.

Repairs or alterations of the parapet should be reported at once by the section commander to the platoon commander, who will report it to superior authority. Repairing of trenches, fatigue, etc., will be carried on either by day or night according to company arrangement. Certain hours will be allotted for these tasks and no man is to be employed upon any kind of work out of these hours. No man should leave his post in the trenches at any time without the permission of the non-commissioned officer in charge of that post. At night there should be at least one sentry post to each ten yards of parapet. At night, double sentries should be posted if possible, and no sentry should be kept on duty for longer than an hour at a time. The arrangement should be such that when one sentry is doing his last half hour, his comrade will be doing his first half hour.

Sentries at night should always have their rifles resting on the parapet, ready to fire at a moment's notice. As few sentries as possible should be posted by day, so as to give as much rest as possible to the remainder of the men.

By day any existing loop-holes may be used by a sentry for observation purposes, but this must be strictly prohibited at night, when the sentry must look over

the parapet. If a sentry is continually fired at, the section commander will post him in another position, but not too far from his original position. There is no excuse for a man going to sleep on sentry duty; if he is sick he should report the fact to the non-commissioned officer, who will report to superior authority.

An armed party of the enemy approaching the trench under a flag of truce should be halted at a distance, ordered to lay down their arms, and the matter at once reported to the company commander. If the party fails to halt when ordered to do so, or does not convey a flag of truce, they should be fired upon. An unarmed party should be halted in the same way. It is not necessary to challenge at night; open fire at once. This is modified only by special instructions.

Men especially picked for listening patrols and sharpshooters will be given special privileges. All loud talking must be checked at night by officers and non-commissioned officers. All working parties must wear their equipment and carry their rifles. All picks and shovels will be returned after use to the company store room. Ration parties and parties carrying materials for repairs, etc., need not wear their equipment or carry rifles; they should be accompanied by a fully armed non-commissioned officer as an escort. Not more than 20 men are to be away from the company at one time; one non-commissioned officer and four men per platoon.

Rifles must be kept clean and in good condition while in the trenches. They will be cleaned every morning during an hour appointed by the company commander for the purpose. Platoon commanders will be responsible that section commanders superintend this work. All rifles except those used by sentries are to be kept in racks during the day.

Trenches must be kept in sanitary condition. Platoon commanders will be responsible for the latrines in their sections of the trenches. All water for drink-

ing and cooking is to be taken from a water cart or tank provided for this purpose.

Stretcher bearers will be stationed at a place designated by the commanding officer. No soldier will be buried nearer than 300 yards from the trenches.

In every platoon a non-commissioned officer will be detailed for duty by day; he will do no night duty. He will post the day sentries and see that they are on the alert and carry out their orders correctly. He will be responsible for the cleanliness of his lines and will frequently visit the latrines. He will see that all loose ammunition is collected.

The platoon commander will always send a non-commissioned officer to draw rations and he will be responsible for their delivery.

The passing along of messages by word of mouth will not be used. All messages should be written.

Special instructions will be issued as to precautions against gas.

Selection of Site.

(a) Fire trench should be selected with due regard to tactical requirements and the economy of men.

(b) Every fire trench should have a good field of fire, at least 250 yards.

(c) The trenches should have the best possible cover.

(d) The forward position on a slope for the first line has the best advantage. The support trench should be on the reverse slope from 100 to 600 yards in rear of the first line to prevent direct observation and to be practically free from artillery fire. The reserve trench is usually from $\frac{1}{2}$ to 1 mile in rear of the first line. Remember that the first line, the support line, and the reserve line are all fire trenches. Do not put them on a crest.

(e) The communicating trenches (boyaux) should be zigzagged, wide and deep, and should follow the low ground. The longest straight trench should not exceed

thirty paces. The angle made by each turn should be less than 140 degrees.

(f) The fire trenches should have salients and re-entrants so as to flank the wire entanglements. The bays are usually 27 feet long with 9 feet of traverse.

(g) There are two problems in the siting of trenches, one for those to be constructed under fire and another for those that will be constructed without any danger from fire. Trenches built under fire are usually made by connecting up individual shelters made by the front line when forced to halt. Trenches built under quiet conditions can be laid out according to the best possible plan.

Trench Construction.

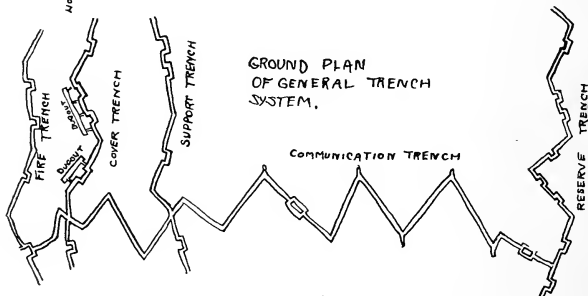
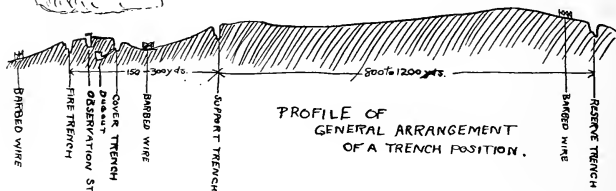
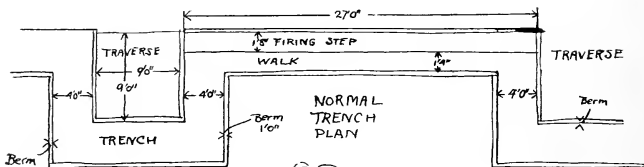
Several kinds of difficulties face the trench digger: Sand, clay, water and bullets. In order to overcome them he must be familiar with the general arrangement of a trench, the principles which govern its construction and the standard trench as it has been worked out in the present war at the cost of thousands of lives.

General Arrangement.—A position is a combination of trenches, consisting of: The fire trench, or first line, nearest the enemy; the cover trench, just behind the first line, where all but sentinels of the fire trench garrison are held in dugouts or shelters; the support trench, from 150 to 200 yards in rear of the cover trench, and the reserve, from 800 to 1,200 yards still further to the rear.

The support trench is placed far enough from the first line to prevent the enemy from shelling both trenches at once. By a concentration of artillery fire and a determined advance of the hostile infantry the first line may be captured. The support trench must be so organized that it will then act as a line of resistance upon which the enemy's advance will break. Lieutenant Colonel Azan of the French army says: "As long as

Plate
#16

TRENCHES



the support trenches are strongly held, the position is not in the hands of the enemy."

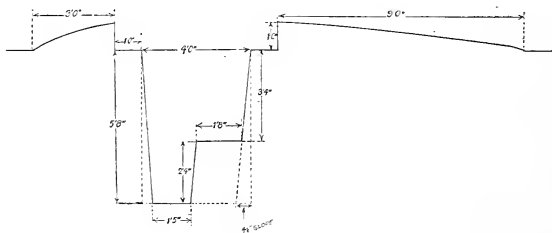
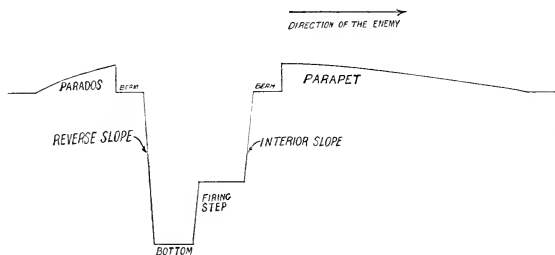
The reserve is usually a *strong point*, so organized that it can maintain independent resistance for several days if necessary, should the enemy obtain control of adjacent areas.

Where possible trenches should be on reverse slopes, with the exception of the first line; but usually the outline of a trench is determined in actual combat, or is a part of hostile trench converted. Under these circumstances it cannot be arranged according to tactical ideals.

Artillery and the automatic gun are the determining factors in trench warfare to-day. The effect of artillery fire must be limited in its area as far as possible, and trenches are, therefore, cut by *traverses*, which are square blocks of earth not less than nine feet square, left every 27 feet along the trench. They should overlap the width of the trench by at least one yard, thereby limiting the effect of shell burst to a single *bay*, the 27-foot length of firing trench between two traverses. Sharp angles have the same effect as traverses, but angles of more than 120 degrees cannot be utilized in this way.

The sides of the trench are kept as nearly perpendicular as possible, to give the maximum protection from shell burst and the fall of high angle projectiles. The *parados*, the bank of earth to the rear of the trench, has been developed during the war to give protection from flying fragments of shells exploding to the rear, and to prevent the figure of a sentinel from being outlined through a loop-hole against the sky. The *berm*, a ledge or shelf left between the side of the trench and the beginning of the *parados*, has come into general use in order to take the weight of the *parados* off the earth at the immediate edge of the trench, and so prevent the reverse slope from caving in easily under bombardment or heavy rain.

PLATE #16A



Automatic guns have made it necessary to break the line of the trench at every opportunity, in order to secure a flanking fire for these arms. Auto-rifles and machine guns have tremendous effectiveness only in depth, and flanking fire gives them their greatest opportunity.

Trench Construction.—The methods of building trenches are the same whether the work is carried on under fire or not. In an attack, upon reaching the limit of advance, the men immediately dig themselves in, and later connect these individual holes to make a continuous line of trench.

Most of the digging must be done at night, and must be organized to obtain the most work with the least confusion. There are three ways of increasing the efficiency of the men. In the first of these, squad shifts, the squad leader divides his men into reliefs and gives each man a limited period of intensive work. Reliefs may be made by squads or by individuals. The second way of increasing efficiency is to induce competition among the man and squads, thus making the work a game in which each soldier's interest will be aroused in the effort to do better than the others. The third method is to assign a fixed amount of work to each man. An average task, which all ought to accomplish in a given time, is found by experience, and those who finish before their time is up are relieved from further work during that shift, and allowed to return to their shelters.

Continual care must be used to check up the tools on hand, as the men are prone to leave them where they were working rather than carry them back and forth to work. Each unit must guard its property from appropriation by neighbors on its flanks.

System of Laying Out Trenches.—The trace of the trench is first staked out, particularly at traverses and corners when the work is to be done at night. Measurements should be exact, and the men should be re-

quired to line the limits of each trench so as not to exceed them in digging. All sod should be taken up carefully and used on the parapet for concealment or on the berm to make a square back wall for the dirt of the parapet. If possible this should be done with the parados wall, so as to make it as inconspicuous as possible from the front.

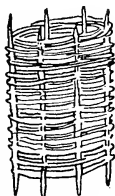
Men should begin to dig at the center of the trench and throw the dirt as far out on the sides as possible, so that as they go deeper the earth can be thrown just over the berm. The slope of the sides will be kept steep and the men prevented from widening the trench as they dig. In sandy soil the sides of the trench should be allowed to reach their angle of repose (which is wider at the top than required), then the trench walls supported with *revetments* to the proper width, which are filled in behind with sand. Always dig to full depth before beginning to revet, as it is impossible to dig deeper afterwards without loosening the revetting.

Revetments.— Every trench at points needs support, and this *revetting* may be done with any of the following materials: Sod; corduroy of logs laid lengthwise; sand bags (size 20 in. x 10 in. x 5 in.); galvanized iron; chicken wire and cloth made in a frame about six feet long; *hurdles*, wicker mats made by driving three-inch stakes into the ground, leaving uprights as high above the ground as the depth of the trench, then weaving withes and slender saplings between the uprights; expanded metal; *gabions*, cylindrical baskets made like hurdles except that the stakes are driven in a circle; *fascines*, bundles of faggots about 10 inches in diameter by 9 feet long. The faggots are laid together on a horse or between stakes driven in the ground, then “choked,” or bound tightly together, by a rope 3 feet 8 inches long with loops at each end, tightened with two stiff levers. The bundle is then bound with wire at intervals of two feet. The circumference of a fascine should be 25 inches.

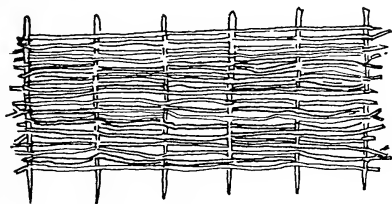
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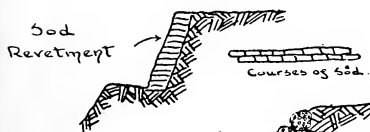
Gabion
(Plan)



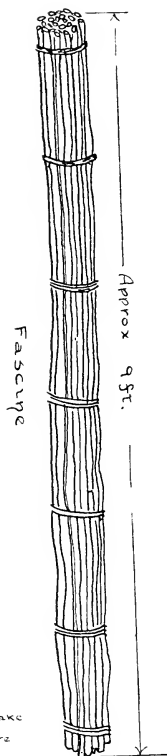
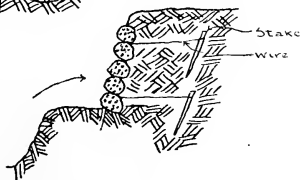
Gabion
(Elevation)



Hurdle



Fascine
Revetment.



Fascine

Capt. Powell of the C. E. F. found during 18 months' service in the trenches, that a separate construction for the bottom and firing step from that of the parapet made repair much simpler when the trench was damaged by shell fire. The upper part of the trench usually suffers most, while the bottom section, if unattached, often remains intact and the drainage system needs only to be cleared out. If the portion above the firing step is one piece with that below, however, the whole trench has to be reconstructed.

There is nothing more important than the supports used to keep revetting in place. With sods, sand bags, concrete and gabions, a proper arrangement in the first place will make other support unnecessary.

Sod should be placed carefully, with a slope of not more than one inch on four, with the vegetation uppermost. This type is least affected by rain.

Sand Bags should be used like brickwork, laid in alternate headers (binders) and stretchers. Their use should be confined as far as possible to emergency and repair work, because after a few weeks the bags rot and cannot be moved about. If the trench wall has been demolished by artillery fire, the particles of cloth make digging out the bottom of the trench a very difficult matter.

Concrete Work has been used extensively by the Germans, but the chips fly like bullets under shell explosion, and the concrete cracks and disintegrates in severe weather. It is used in the bottom of trenches for drainage and for the firing step.

Gabions may be set into the wall of the trench and filled with earth, or used at corners to prevent the wearing down of the edge, which reduces the protective effect of the trench. Set in at a slight angle they will hold the side without further re-enforcement.

With the other forms of revetting some secondary support is required. This is usually furnished by sinking

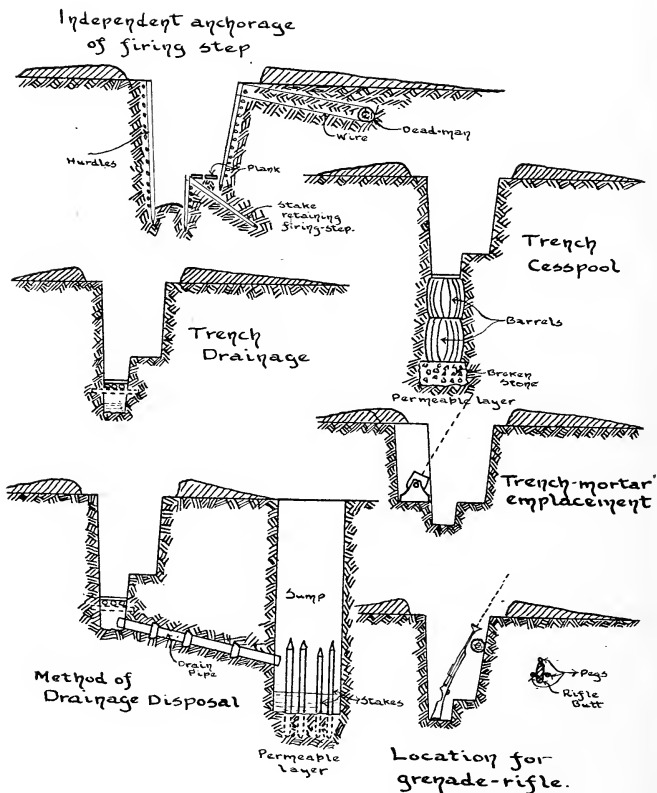
stakes into the bottom of the trench and securing their upper ends to a "dead man"—a stake or log sunk in the ground more than three feet away. The tendency is to sink the dead men too near to the trench, and to attach too many wires to one of them. It is important to sink the stakes at least one foot below the bottom of the trench. By digging holes for them instead of driving them in directly, the sides of the trench need not be disturbed by the concussion of driving the stakes. This is especially important in sandy soils. Stakes should be placed about two feet apart. Dead men should be buried deeply enough to prevent cutting by shell explosions.

Trench Armament.—A few machine guns are set in concealed emplacements along the trench to cover important salients. The automatic rifle is used over the parapet. Besides these there is the rifle grenade and trench mortar. The rifle grenade has a simple emplacement. After securing the proper elevation, the butt of the rifle is placed between posts or blocks of wood and the muzzle rested against a log on the wall of the trench. A trench mortar emplacement is dug in the rear wall of the trench, or a shell hole is utilized, care being taken to conceal it from aerial observation.

Loopholes.—Loopholes are still much in use for observation, but they are employed less and less for firing, as they are difficult to conceal from the enemy and almost useless when the enemy is close. They should cut the parapet diagonally, not directly to the front, and should be concealed by vegetation and by a curtain over the opening when they are not in use. Sheet steel plates with small peep holes are used on the parapet. They are set up with a slope to the rear to deflect bullets.

Trench Bottoms.—In clay or hard soil special arrangements must be made for drainage. Where possible the trench should have a convex surface and should be smooth. A rough bottom means delay in reliefs, and

Plate
#18



possible injuries. Where trenches are used for long periods board walks should be constructed. Under these drains or sink holes can be placed to collect water. A sink hole may be constructed by digging a pit filled with small stones, or a barrel may be sunk into the ground and filled with stone. Where there is not sufficient slope to carry off the water, or at the lowest point of a drainage system, a water hole should be dug in front of the trench large enough to handle the drainage water.

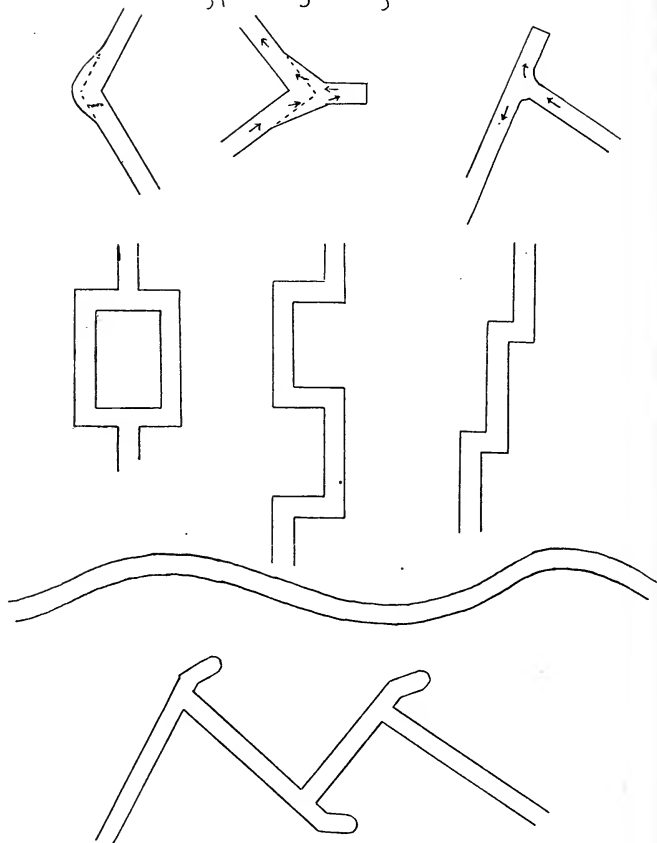
Communication Trench (or Boyau.)—Running to the rear and joining the different parallel resistance trenches are communication trenches or boyaux. These are for transportation of men and material as well as for communication. Communication trenches should be made wide enough to allow travel for men with loads, should be at least seven feet deep and as smooth as possible on the bottom. Rough places will delay traffic. They are dug with turns every 20 or 30 yards to prevent their being swept by gun fire. When boyaux are built by night sharp zig-zag corners should be used, or the angles will not be acute and protection will be lost. During daylight when the directions can be seen, the construction may be a serpentine curve, with no stretch of more than 30 yards visible from one point.

Boyaux are sometimes used for lateral defence and often emplacements for automatic guns are arranged to cover stretches of them. Bombing stations are placed near by to protect the guns and to clear the boyau of the enemy. At these points the boyau is left straight for a short distance in front. Where provision is made for lateral or frontal defence by rifle fire, firing steps are constructed. If this is inconvenient for movement along the boyau, individual emplacements must be made in the side wall for firing. Sentry posts are dug at right angles to the boyau.

Arrangements for passage of men moving in opposite directions may be made by extending short spurs at the

Plate
#19

Types of Boyaux



corners, enlarging the boyau at the bends, digging niches or passing points here and there, or constructing island traverses with the boyau running around on each side.

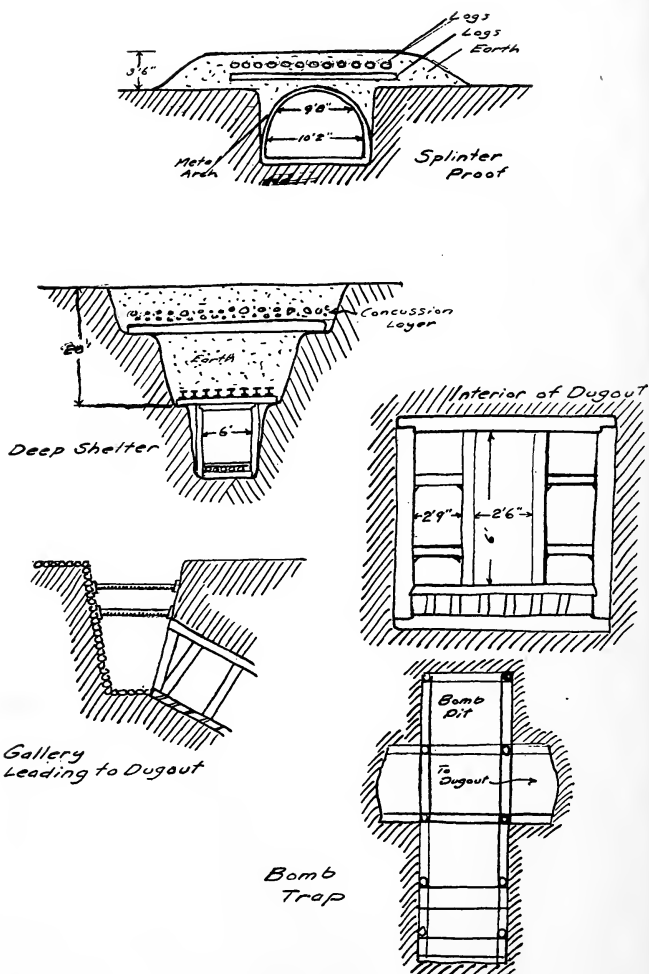
Every boyau should be marked where it meets a trench with a sign indicating the place and trench. Without this messengers, reliefs and re-enforcements may easily be lost in the maze of trenches.

Latrines should be run out about 20 feet from boyaux at points directly in rear of lateral trenches. If possible they should be placed so that men cannot enter them without passing near the platoon leaders. This will prevent men from leaving the front line, under the pretense of going to latrines, during bombardments or mining operations. The trench leading to a latrine should be constructed like a boyau, and the pit should be close to the side nearest the enemy, to give the best possible protection from shell fire. There are three types of trench latrines: Deep boxes which are covered and have rough seats; short straddle trenches or trenches equipped with a single horizontal bar, and portable cans, used where the ground or the limited space make it impossible to dig pits. These cans should be emptied daily into holes behind the trenches, which are covered after the cans are emptied into them.

Urinals should be separate from the latrines. They may be either holes about three feet deep filled with stone, troughs with a covered pit at the end, or portable cans.

Shelters. For the protection of men not actually on duty three forms of shelters are used. The *splinter-proof* is a form of light shelter whose covering affords protection only against splinters. These are usually on the reserve line. About 12 inches to 20 inches of earth over a roof of logs or planks will afford protection from splinters and shrapnel. Curved sheets of iron may also be used. The *deep shelter* or *bomb-proof* is a chamber constructed by digging from the surface and construct-

Plate No. 20.



ing a roof. To protect against eight-inch shells the top of the chamber should be twenty feet below the surface. Heavy beams or sections of railroad iron are laid across the roof. Above them is a layer of earth several feet thick; then another layer of timber extending to undisturbed ground on the sides with concrete, crushed stone, metal, etc., above to make a percussion surface for exploding projectiles that penetrate the upper layer of earth. This layer fills in the rest of the space to the level of the ground.

Shelters should not exceed six feet in width, but can be of any length. This will prevent the crushing in of the roof timber by the explosion of a projectile buried in the upper layer of earth. The principles of constructing shelters will be considered under "Dugouts," as they are similar for the two types.

Dugouts are chambers tunnelled into the ground with twenty feet or more of undisturbed earth above them. They are used in the cover trenches and sometimes in the first line. Enough of them must be built to shelter the garrison of each sector, allowing one man per yard of front. They must also be built for machine gun and trench mortar detachments.

Sentries must be stationed in observation posts which command the ground in front of each dugout. They must be connected with the dugouts by telephone or speaking tube.

Position.—Dugouts must always be on the side of the trench toward the enemy. This prevents flying shells from falling into the entrances. They should connect with lateral trenches, not with boyaux, as men at the entrance obstruct traffic through the boyaux.

Entrances and exits must be well concealed, with not less than five feet of head cover. This should be provided with a bursting layer. All dugouts must have at least two openings, one on the opposite side of the tra-

verse or angle from the other. It is well to have an exit behind the parados leading to a surprise position for a machine gun and bombers. All openings must have a sill 6 inches to 8 inches high, to prevent water from entering the dugout.

Galleries leading to dugouts should be built at an incline of 45 degrees. Their dimensions should be 2 feet 6 inches by 6 feet. Frames are of squared timber. The sill and two side posts should be not less than 6 inches square, and the frames in the passageways 2 feet 6 inches by 4 feet 6 inches. They must be placed at right angles to the slope of the gallery, with distance pieces between uprights. In treacherous soil the frames rest on sills. Steps in the passageway are 1 foot broad and 1 foot high.

Bomb-traps, extensions of the gallery about 3 feet long, should be dug beyond the point where the entrance to the dugout chamber leads off from the gallery. These will catch bombs thrown in from the surface and protect the chamber from the effects of their explosion.

Interior. The standard section is 6 feet by 8 feet, to allow for bunks on each side. Frames of 6 by 6 timber spaced 2 feet 6 inches apart support the sides and roof. Roof planking should be 2 inches thick, and the sides should be covered with 1½ inch plank or corrugated iron. Two shovels and two picks for emergencies should always be kept in each dugout. The construction of the chamber should be that of a very strong box, so that it will stand strain, if necessary, from within as well as from without.

Depots for Supplies must be near the headquarters of the platoon, company, battalion and regiment. Shelters may be made with ammunition boxes set into the side of the trench. Places should be provided for the following: Food, ammunition for rifles and auto-rifles, grenades, rockets, tools and other supplies. Places must also

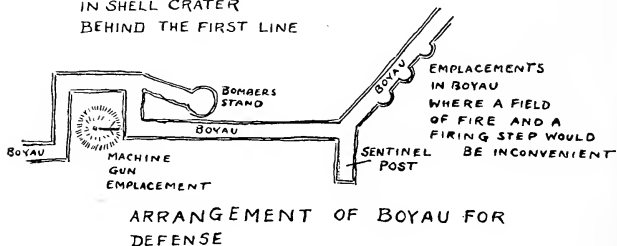
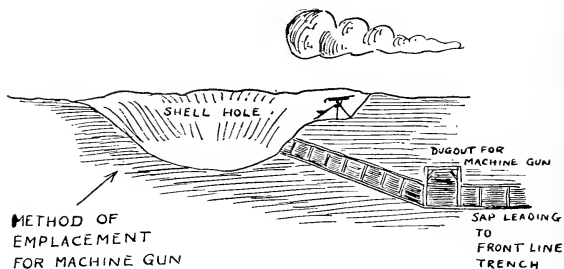
be arranged in the front line for ammunition, rockets and hand and rifle grenades.

Telephones. Communication is established as speedily as possible with the various units. In the forward trenches wires do not last long under bombardment and are left open along the side of the trench, where quick repairs can be made. All soldiers must be taught to respect these wires and to care for them when they are found under foot or hanging. Conduits are dug for wires to battalion and regimental headquarters, and these are fairly safe from shell fire.

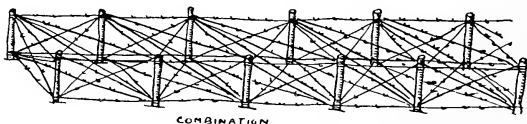
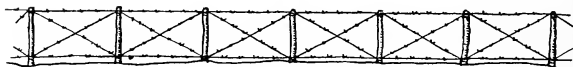
Departure Parallel. In preparing for an advance upon the enemy, a straight line trench without traverses, and with steps at the end for exit to the surface, is built in front of the first line trench. This line of departure is generally brought within about 200 yards of the hostile line by means of *saps*, short trenches run out from the front line to the new parallel. Since this line of departure can be seen by the enemy, it is sometimes better to construct steps in the front line trench itself, or when possible to build a *Russian sap*. This is a tunnel very near the ground, which can be broken through at a moment's notice when troops are ready to advance.

Machine Gun Emplacements.—Shell-holes with a good field of fire and emplacements along boyaux are the best location for machine guns. Few guns are placed in the front line, and these only at strong points in the line, which command a maximum field of effectiveness. Shell-holes may be imitated for machine gun emplacements, but in any case they should be connected by underground passage with the trenches. Thus when trenches are destroyed by bombardment the machine guns remain intact. The field of fire for each machine gun should be carefully determined and marked by three stakes, one for the position of the gun, the other two for the limits of the field of fire. Using these as

No 21



BARBED WIRE ENTANGLEMENT



guides, the gun can be fired correctly at night. During the day it is never left in place nor fired from its actual emplacement.

Listening Posts.— These stations are usually carried out to the edge of the entanglements nearest the enemy. The listening station must be large enough for half a squad, and often has an automatic rifle and grenade thrower. There should be not more than two posts for each battalion. They are not occupied during the day. They are hard to defend and easily captured by a raiding party which cuts the wire to one of the flanks and comes in from the rear. The boyau leading to the post should be zig-zagged. The post itself should be deep enough for good head cover.

Wire Entanglements.— The object of the entanglement is not to stop completely the advance of the enemy, but to delay him at close range under machine gun, auto rifle and rifle fire, and within range of grenades and bombs. Entanglements should be concealed as much as possible from the enemy's trenches and from aerial observation. If possible, they should be placed on a reverse slope or in a dead angle. They should be from 50 to 100 yards in front of the trench, so that artillery fire directed upon the trench will not be effective on the wire. At the same time the wire must not be far enough advanced so that the enemy's raiding parties can cut the entanglements.

Wire entanglements are classified as high entanglements, low entanglements and loose wire.

High Entanglements are strung on metal or wood posts about four feet high, both wire and posts being painted for camouflage. The driving of posts must be muffled, and metal screw posts are used when near the enemy's line. Posts are placed in two parallel lines, two yards apart, spaced alternately so that the posts in one line are opposite the middle of the interval in the other.

Tracing Entanglements is done by a sergeant followed by two stake placers, two holders and two drivers, who in turn are followed by men attaching wire. Two men carry each roll of wire, and each pair (there are twelve pairs in all) strings one wire. A panel between stakes is composed of four strands. Each wire should be wrapped around each post. The same arrangement of panels should run between the two lines of posts. The entanglements are in three lines about 20 yards apart, the nearest being 20 yards from the front line trench. The entanglement nearest the enemy should be constructed first, so that men always work nearest their own trenches. All wire entanglements should be at all points commanded by the flanking fire of machine guns. High entanglements (known as abatis) may be made by felling trees toward the enemy, and similar entanglements made of brushwood are useful in emergency.

Low Entanglements are formed of pickets two feet high, $2\frac{1}{2}$ inches in diameter, wired in all directions. Vegetation renders the entanglement invisible from the enemy and from aerial observation. This type may also be placed in shallow excavations which are concealed from the enemy and partly protected from artillery fire. Sharpened stakes, with their points hardened by fire, driven obliquely into the ground, may also be used.

Loose Wire in the form of loops of small diameter fastened to stakes, or wire laid along the ground and attached at the ends, or spirals of barbed wire in racks, is used for entanglements. It is reported that this form is coming into considerable use, but the details have not been published. Such entanglements are much harder to locate by aerial observation.

The following are a number of criticisms made by Lieut. Henri Poire of the French army, detailed as instructor at Plattsburg, upon the system of field works

constructed by the 17th and 18th Provisional Training Regiments. The ground was of loose sand, with some gravel at a depth of about six feet.

1. Dimensions of trenches as laid out were not followed.

(a) Bottom of trenches behind firing steps too narrow.

(b) Firing step too deep. It should never be more than 3 feet 4 inches below berm of parapet.

(c) Parapet much too thin in most cases. It should be at least three feet thick.

(d) Communication trenches (boyaux) generally too narrow.

(e) Islands in communication trenches should never be less than 10 x 12 yards — otherwise one shell will demolish the entire passageway.

2. Revettment work not well anchored. In some cases too many wires from supports fastened to one dead man. Another fault is that dead men were not buried deeply enough in the ground, nor far enough back from the trench. In one case a dead man (a stake) supported all four sides of an island in a communication trench. The destruction of this post would have completely blocked every passage around the island. Furthermore, dead men rot quickly and tend to break off. It is necessary, therefore, to have a number of them, each holding only a portion of the weight. All projecting branches and irregularities along a trench should be removed by occupying troops.

3. Too many loop-holes. Except for snipers, riflemen and automatic riflemen fire over the parapet.

4. Machine gun loop-holes not wide enough. They should not be less than 36 inches wide. There must be vegetation planted in front and a curtain hung over the

loop-holes to prevent detection. The growing plants in front will be easily swept away at the first discharge.

5. Remember never to imitate shell-holes until after a real bombardment by the enemy.

6. The dugouts made were never deep enough and afforded no protection. In fact it would be far better to have none than to be caught inside when a shell exploded in a shallow one, because the confinement of the explosion would intensify the effect.

7. Shelters were all too wide. Six feet is the maximum.

The platoon headquarters dugout should be of the same width as the trench, not over three feet, but as long as necessary. Company headquarters is six feet wide and of whatever depth required.

8. In digging, not enough care was used to conceal the fresh earth from the enemy. Make false emplacements to utilize this dirt; also dig dummy trenches about one foot deep, leaving the sides sharp so that they will show clearly on aerial photographs.

9. In using plants as camouflage, distinct care must be exercised not to put growing plants too freely nor to place them where they never existed. The actual ground conditions must be copied.

10. Some latrines were not arranged with the stools close beneath the wall nearest the enemy. This caused the loss of protection, which it is imperative to consider, as many casualties occur here.

11. Too many listening posts. They are easily captured by hostile fighting patrols. There should never be more than two listening posts to a battalion.

12. The observation stations in many instances had no good field of fire or were outlined against the sky on the crest of some rise. The site for an observation post should always be placed over the crest and have a good field of fire for use in case of attack.

Occupation.

I. Relief in the Trenches.

A. THE TWO MAIN CLASSES OF RELIEF:

1. General Relief. Applied to the relief of a whole position manned by a division or more. Executed when large units are going to "full rest" in the rear or being removed from one part of the front to another. Executed in the same way as interior relief; i. e., by successive relief of the battalions involved.
2. Interior Relief. Applied to the relief of one sector or portion of a sector manned by a brigade or less.

B. GENERAL PRINCIPLES OF RELIEF:

1. Interior relief is executed about once every six days; more frequently when the stay in the trenches is particularly arduous, less frequently when it is unusually comfortable.
2. The battalion is the relieving unit.
3. "It is advisable to arrange the relief between units which have friendly relations to one another; e. g., battalions of the same regiment; and, so far as possible, to assign each unit to the same trenches on each relief. This promotes continuity of effort.
4. Relief is executed at night; the hour must be varied; secrecy is imperative.
5. Prompt execution is essential, to prevent fatigue of the troops and congestion of the boyaux.

C. THE MECHANISM OF RELIEF:

1. Reconnaissance, 24 hours in advance, by the captain of each relieving company, accompanied by his platoon leaders and non-commissioned officers. He ascertains:
 - (1) The plan of occupation; i. e., the dispositions and duties of the unit to be relieved.

1. Relief in the Trenches — (*Continued*):C. THE MECHANISM OF RELIEF — (*Continued*):

- (2) The shelter accommodations.
- (3) Work being done and proposed.
- (4) Condition of the wire and other defences.
- (5) The available water supply.
- (6) Artillery support.
- (7) Communications.
- (8) The location, amount and condition of stores.
- (9) Danger points.
- (10) All available information of the enemy; his habits, location of his snipers, what work he is doing.
- (11) The ways and means of liaison, both lateral and from front to rear.

To the success of this reconnaissance, the closest co-operation between all officers of the companies relieving and relieved, is indispensable.

2. The march from billets to the trenches:

- (a) Transportation, by auto-trucks and wagons, is utilized to a point as near the lines as possible, to carry the packs of the men, the auto rifles, extra ammunition and other heavy equipment. When the distance is great the men themselves should be carried by auto-truck; this saves time and fatigue. The men will carry rifles loaded and locked, full cartridge belts, gas masks, and all other lighter equipment, with rations for 24 hours at least. Grenades will be secured in the trenches.

Electric torches will be carried by company and platoon commanders.

- (b) The strictest discipline must be maintained. On arrival within sight of the enemy, noise and smoking (or other lights) will be prohibited.

1. Relief in the Trenches — (*Continued*):C. THE MECHANISM OF RELIEF — (*Continued*):

(c) Guides, from the company to be relieved, will meet the relieving company promptly at a point definitely agreed upon in advance.

3. The march through the boyaux (communicating trenches):

(a) Distance; often as much as three or four miles.

(b) Order of march: company in single file, captain at the head; each platoon leader at the head of his platoon; a non-commissioned officer at rear of each platoon.

(c) The column must be kept closed up. Each man must consider himself a connecting file, guiding on the head, and behave accordingly. A guide should accompany the commander of the last platoon.

(d) Rate of march: roughly, about 40 yards per minute. It takes 250 men about 20 minutes to pass a given point.

(e) Route and right of way:

The first line and support trenches will never be used as roads. Separate boyaux should, if possible, be assigned to the troops relieving and relieved. In no case will one company cross the path of another. In case of two columns meeting, one moving forward, the other to the rear, the former has the right of way.

4. No man of the unit in occupation will leave his post until he has actually been relieved and has transmitted all orders and information relative to that post.

5. Liaison must be established, immediately on arrival, with the units on the flanks and with headquarters in the rear. Captains must make

1. Relief in the Trenches — (*Continued*):C. THE MECHANISM OF RELIEF — (*Continued*):

sure that their runners are thoroughly acquainted with the routes of communication.

6. As soon as relief is accomplished both captains will report that fact to their respective commanders.

7. The relieving commander then inspects his trenches. He ascertains that all his watchers are at their posts and that the balance of his men know their posts and duties and are prepared to assume them quickly.

8. The duties of the relieved commander are:

(1) To turn over his sector thoroughly policed and in good condition as regards its construction and the new work, if any, in progress.

(2) To turn over his supplies in good condition and fully accounted for.

(3) After reporting the relief, to march his men back to billets as promptly and secretly as possible, in column of files, platoon leaders in the rear of their platoons, a non-commissioned officer and guide at the head of each.

(4) On the evening preceding relief, to send his cooks back to billets so that his men may be provided with a hot meal immediately on arrival.

D. If an attack occurs during the march through the boyaux, to or from relief, the company affected occupies the nearest defensive position and at once notifies its battalion commander. If an attack occurs during the actual process of relief, the senior officer present takes command.

II. The Stay in the Trenches.

A. THE FOUR OBJECTS OF A TRENCH COMMANDER:

1. Security of his sector.
2. Protection of his troops.
3. Constant and accurate observation.
4. A continuous offensive.

B. HIS PLAN OF DEFENSE:

1. General principles of defense:

- (a) Arrangement in depth. The most dependable defense is in prearranged counter attacks. The system of defense must react like a helical spring.

(b) Tenacity of defense.

1. Each unit must be prepared to hold its post to the last extremity.
2. Orders to withdraw will never be obeyed unless unmistakably valid.
3. All ground lost must be retaken at once in counter attack by the unit which lost it.

(c) Apportionment of responsibility. Each active segment must have a commander responsible for its defense, upkeep and sanitation, and the discipline and instruction of his men.

2. Basis:

- (a) The plan of defense turned over by the preceding commander. This will usually suffice for the first 24 hours after relief.

- (b) General information of the enemy's lines, dispositions, and intentions, based chiefly on aerial photographs.

C. ORGANIZATION OF DEFENSE:

1. Allocation of front. (The front of an American battalion will average about 1,000 yards.)

Diagrams: A. The Regiment. B. The Battalion, C. The Company, D. The Platoon.

II. The Stay in the Trenches — (*Continued*):C. ORGANIZATION OF DEFENSE — (*Continued*):

2. Distribution of effectives. Determined chiefly by the terrain and by 3.
3. Employment of the several arms:
 - (a) Machine guns. Crew of 8 men per gun. (Furnished by detachments of a machine gun company.) Located by the infantry commander, in concealed emplacements behind the first line, to deliver successive barrages from flanking positions. Effective range: up to 700 yards.
 - (b) Automatic rifles. Crew of 3 men per rifle. Usually posted to enfilade the entanglements of the first line. They concentrate the fire effect of from 7 to 10 riflemen. Effective range: up to 300 yards.
 - (c) Rifle Grenadiers. Located near enough to first line to hold the enemy trenches under fire and deliver effective barrages near the mouths of our own communicating trenches. Should be located near observation posts so that their fire can be promptly corrected.
 - (d) Trench mortars. Located similarly to (c). Manned by riflemen.
 - (e) Bombers. One supply man to each 2 grenadiers. Used for protection of auto-rifles, in counter attacks, for protection of communicating trenches and fighting in close quarters.
 - (f) Riflemen. Posted to deliver frontal fire. Grouped according to the plan of counter attacks.
 - (g) As many men as possible should be instructed in the use of the enemy's weapons.

II. The Stay in the Trenches — (*Continued*):

D. LIAISON:

- (a) By telephone. Quickest and most accurate. Maintained between each platoon and its company headquarters, and between adjoining companies. Especially subject to destruction in bombardment. Wireless and ground telegraphy are used only between brigade and division headquarters.
- (b) By runners ("liaison agents"). Five detailed from each company to battalion headquarters; one sent to each adjoining company headquarters; one from each platoon to company headquarters; four or five on duty at each platoon headquarters; five from each machine gun company to battalion headquarters. Messages sent by them should, if practicable, be written and signed, and should be receipted for by the addressee.
- (c) By rockets and flares. Quickest means of liaison with the artillery in rear.
- (d) Domestic (message carrying) grenades.
- (e) Dogs and carrier pigeons. Sent out to the rear from battalion headquarters.
- (f) One searchlight — with a radius of 3 miles — is furnished to each company.
- (g) Noise. Klaxon signals, etc., give warning of gas attacks.

E. OBSERVATION:

(a) Observers:

1. Must be men of infinite patience, keen hearing and eyesight.
2. They are located behind the first line in positions combining good view with concealment.

II. The Stay in the Trenches — (*Continued*):E. OBSERVATION — (*Continued*):

3. Each is provided with a panoramic map, made from aeroplane photographs, of the enemy's trenches. On this must be promptly noted every slightest change in the trace, height of parapet, etc., of the enemy's line. Such notes greatly assist in locating machine gun emplacements.
 4. Each observer will also record in a note book everything of importance, with the time observed.
 5. A report of changes, with an abstract of observer's notes, is forwarded daily to regimental headquarters.
- (b) Watchers (sentinels):
1. Stationed, one near the door of each dug-out, in the first line, support and intermediate trenches.
 2. They must be carefully concealed.
 3. They must watch over the parapet (never through slits or loopholes) so as to have unrestricted view.
 4. They are furnished with signal rockets and flares for prompt communication with the artillery, and have authority to use them.
 5. Double sentinels are posted at night.
- (c) Listening Posts:
1. Located, usually in shell holes, just inside the entanglements. Connected with front line by tunnels. Protected from grenades by heavy gratings, when possible, and by concealment.
 2. Occupied by 4 men (1 in command), in 3 reliefs. Usually occupied only at night unless our trenches are on a reverse slope.
 3. Chief function is protection of the entanglements.

II. The Stay in the Trenches — (*Continued*):E. OBSERVATION — (*Continued*):

- (d) Microphone Posts.— Installed usually behind the first line. Intercept the enemy's telephone and ground-telegraph messages and any loud conversation in his trenches.
- (e) Fixed Patrols.— Generally remain in shell holes in front of our entanglements.
- (f) Reconnoitering Patrols:
 - 1. Composed of from 3 to 5 men, commanded by a non-commissioned officer. Sent out at night only.
 - 2. The company commander must promptly notify commanders of adjoining companies of the dispatch of these patrols, their time of departure, route and probable time of return.
 - 3. Men should be assigned to this duty by roster.

F. TRENCH WORK:

- 1. Constant battle with the elements, care for drainage, revettment, sanitation and storage.
- 2. Repair of the effects of bombardment.
- 3. New work, for better security, communication and observation.
- 4. Work in the open.
 - (a) Usually consists of repair or rearrangement of wire entanglements, digging new listening posts, etc.
 - (b) Effected by parties detailed by roster.
 - (c) They are guarded by fighting patrols, composed like reconnaissance patrols. Their best protection is in silence and concealment.
 - (d) Adjoining companies must be notified of their dispatch, location and probable time of return.

II. The Stay in the Trenches — (*Continued*):F. TRENCH WORK — (*Continued*):

- (e) This work, like all operations conducted outside the protection of the trenches, offers a valuable tonic to the morale.

G. OFFENSIVE OPERATIONS:

1. Sniping:

- (a) Snipers constitute one of the most dependable and productive agencies of attrition.
- (b) The best shots of the company are especially trained and assigned for this duty exclusively.
- (c) They operate in pairs and post themselves to cover any exposed portions of the enemy's trenches, especially his communicating trenches.
- (d) They should be well supplied with all necessary special equipment; *e. g.*, sniper-scopes, telescopic sights, painted head-gear, etc.

2. Mining Operations.

3. Raiding:

- (a) Object of raids: destruction of the enemy's defenses, disturbance of his morale, collection of prisoners and information.
- (b) The personnel of raiding parties will usually include: A commander and second in command, bayonet men, bombers, engineers, signal men, stretcher bearers. Their numbers and proportions are regulated by the nature and difficulty of the task.
- (c) Co-ordination with the artillery barrage is the essential of their success. The limit of advance, extent of operations, and time of return will therefore be set in advance and rigidly adhered to.

II. The Stay in the Trenches — (*Continued*):

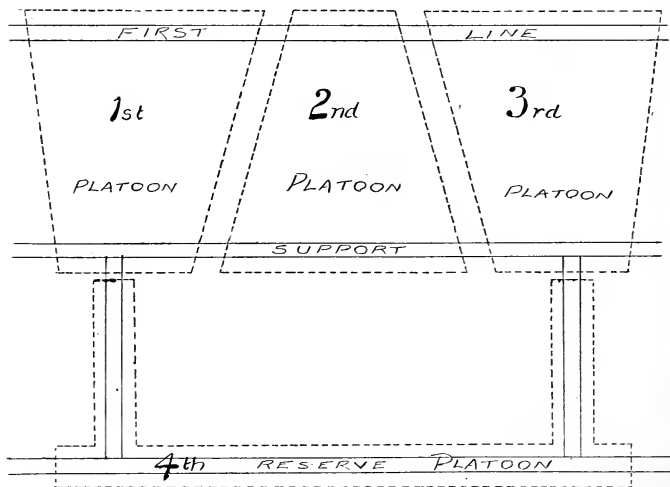
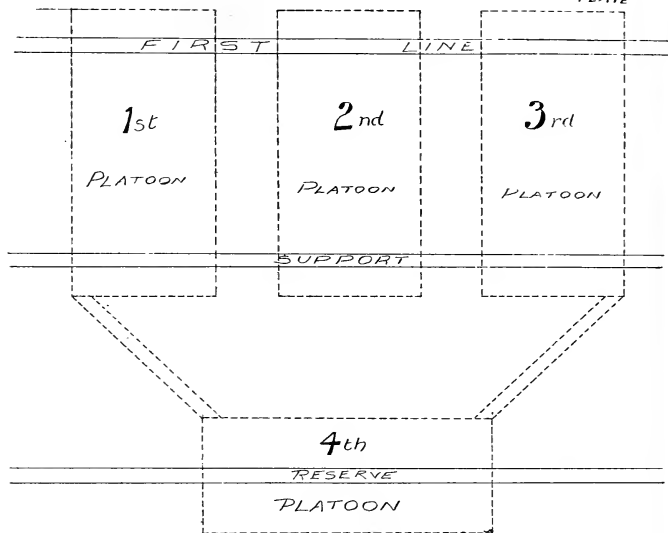
H. ROLE OF THE TRENCH COMMANDER:

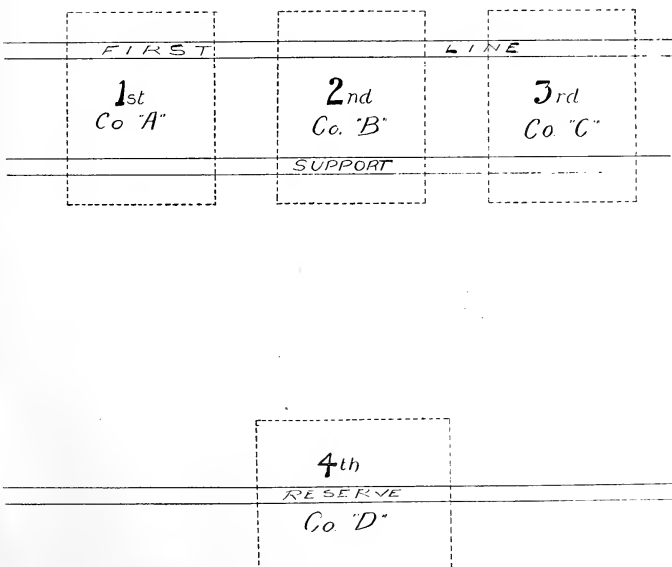
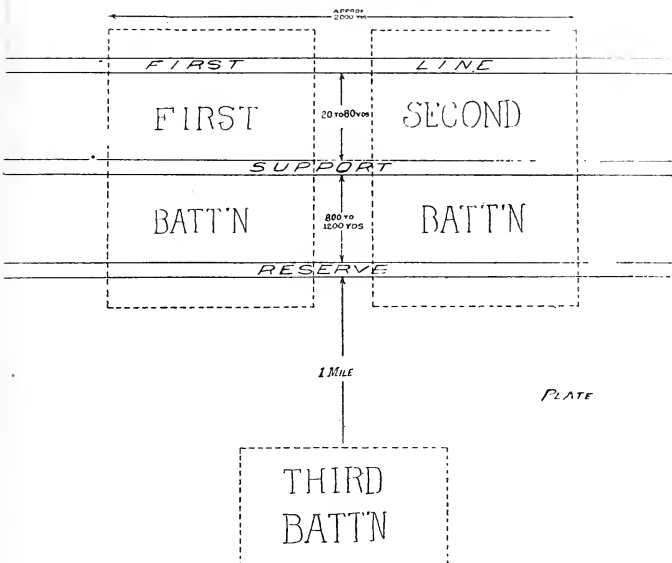
1. Inspections: The men will be formally inspected twice daily at the general "stand to" by the company commander. Particular attention will be paid to the health of the men, condition of their feet and their clothing. Each man must have at least one pair of dry socks always available. Arms, gas masks, and other equipments will also be rigidly inspected.
2. Roster: The company commander will carefully supervise the preparation of the duty roster. An obviously equal distribution of the arduous duties involved in trench life is essential to the maintenance of morale.
3. Reports and Records: (Additional to those already required by regulations.) Log Book, Report of Casualties, Wind Report (daily), Bombardment Report (daily), Intelligence Report, which will include observer's notes and changes (twice daily), and a daily report of Work completed and Undertaken.
4. "One principle which the trench commander should never forget is the necessity for his frequent presence in the midst of his men. * * * Direct contact with the troops on as many occasions as possible is the most certain way to gain their confidence."

Duties of the Company Commander.

1. To inspect the sector his company is to occupy, one day in advance of occupying it.
2. To assign segments to the platoons.
3. To prepare a plan of defense.
4. To connect by liaison with the companies on his flanks.

PLATE





5. To have an agent or runner at Battalion Headquarters.
6. To prepare a plan for counter attacks.
7. To report to the Battalion Commander when his company has taken up its position:
 - (a) Its situation.
 - (b) Security.
 - (c) Liaison.
 - (d) State of position left by predecessor.
 - (e) Defense of sector.
 - (f) Plan of counter attacks.
8. To inspect the trenches frequently to see that everything is in proper condition and that his men are in jubilant spirits.
9. To have platoon guides report to Battalion Headquarters on the date for the relief of his company and act as guides to the company that relieves him.
10. To keep a special log book in which the following are kept:
 - (a) Work completed by his unit.
 - (b) Work under way.
 - (c) Work proposed.
11. Turn over to his successor:
 - (a) Measures taken for security.
 - (b) Plan of attacks.
 - (c) Plan of counterattacks.
12. Have one officer on duty at all times.
13. "Stand to" will take place one (1) hour before daylight, and all available men will attend. There will be a thorough inspection. Rapid loading will be practiced. The firing position of every man will be tested to see if he can hit the bottom of our wire. Gas helmets will be inspected.
14. Time table — allot hours of work, rest and meals.
15. Supplies — make timely requisitions for them —

be especially watchful about meals and rations — have no delays.

16. To have one watcher and one relief on duty near Company Headquarters at all times.
17. To get a good field of fire to the front and cover the sectors of each company on flanks.
18. (Subject to change) Red Rocket-Artillery Barrage wanted.

White Rocket Gas Attack.

19. To report twice daily all changes in wind direction.
20. To report to Battalion Commander when relieved.

Duties of Platoon Leaders as Officers on Duty with Company.

1. Report with old officer at company headquarters.
2. Make frequent inspections of all trenches occupied by company.
3. Visit each Listening Post at least once during tour of duty.
4. Visit all sentinels and receive their reports.
5. See that one non-commissioned officer per platoon is on duty.
6. Receive reports of non-commissioned officers after they have posted sentinels.
7. At end of tour hand over to new officer all orders, a report of work in progress, and any useful information.
8. Report with new officer at Company Headquarters on completion of tour.
9. To report anything unusual to Company Headquarters.
10. To send dead and wounded to dressing station trenches.
11. To send patrols to front at night.

Duties of Platoon Leaders.

1. Must accompany company commander on inspection of trenches one day previous to occupying them.

2. Make necessary reliefs for his men in his segment.
3. Make a plan of defense and counterattack for his position or approve the one left there.
4. Establish sniping posts and arrange reliefs.
5. Establish Listening Posts and arrange reliefs.
6. Assign non-commissioned officer to duty with platoon and arrange relief.
7. Instruct every man as to his place in case of attack.
8. Establish liaison with platoons on both flanks; and one runner to Company Headquarters.
9. Have one platoon guide report to Company Headquarters on day his platoon is to be relieved.
10. On completion of posting his platoon, report to his company commander.
11. Turn over to platoon relieving him all orders and data pertaining to his position.
12. Be especially attentive to rigid military discipline; *i. e.*, every soldier to be neat; equipment must be clean at all times; to render the required salute when not observing or firing at the enemy.
13. Have one non-commissioned officer on duty at all times.
14. To inspect rifles, equipment and latrines twice daily.
 - (a) To have at least one latrine in working order at all times.
 - (b) To have a sentry on duty at each platoon dugout at all times.
 - (c) Establish one Observation Post in daytime.
15. **In Front Line Trenches:**
 - (a) No smoking or talking to be allowed at night.
 - (b) Every man to wear his equipment except packs.
 - (c) Have rifle within reaching distance.
 - (d) All reliefs to be within kicking distance of soldier on duty.
16. Inspect at "Stand to" and report results to Company Headquarters, especially if each man has

170 rounds of ammunition and necessary grenades and bombs.

17. To be especially attentive to sanitation and care of the men's feet.
18. To have one (1) watcher and relief on duty at all times near platoon dugouts.
19. To get a good field of fire to his front and to cover the sector of each platoon on his flanks.
20. Make requisition for material.
21. To see that all of his men are properly fed.
22. Report to company commander when relieved.
23. Must know what every man is doing at all times.

Duties of Non-Commissioned Officer on Duty (Each Platoon).

1. To make frequent inspections of the position occupied by his platoon.
2. To be responsible that each soldier knows his duties.
3. To report anything of special importance to officer on duty.
4. On being relieved to report with the new non-commissioned officer to the officer on duty.
5. After posting sentinels to report "All is Well" to officer on duty.
6. Explain to his sentinel his duties, the position of Section and Platoon Commanders and of sentries on either side; and to caution his sentries when friendly patrols are out, the probable time and place of return.
7. Bayonets will always be fixed in front line trenches.
8. At night time to have double sentinel.
9. To see that each sentinel in daytime has a periscope.
10. Rifles to be loaded; no cartridge shall be in the chamber except when necessary to shoot.
11. To report to Company Headquarters any change in direction of wind.

Patrols.

1. Usual orders about patrols.
2. Always go out at night via the Listening Post; tell the men in the Listening Post your mission and probable time of return.

Sentinels.

1. To sound Klaxon horn on approach of gas attack.
2. To report immediately to non-commissioned officer on duty any change in direction of wind.
3. In cold weather to work bolt frequently to keep it from freezing.
4. At night to challenge only in case of necessity, and then only in a low tone. Challenge "*Hands up.*"
5. Number of posts depends on assumed nearness of enemy and local conditions. Normally one per platoon by day and three double sentinels per platoon at night.
6. Relief kept close at hand. Report "All is Well," or otherwise, when officer passes.
7. Screened from observation.
8. Remain standing unless height of parapet renders this impossible.

Machine Guns.

1. Non-commissioned officer and one (1) watcher on duty at all times.
2. Except in emergency they will not be fired from their regular emplacements.
3. Unless emplacements are well concealed, guns will not be mounted except between evening and morning "stand to."
4. Before dusk each gun will be sighted on some particular spot either in front of or behind the enemy's line.
5. Range cards will be prepared and kept with each gun.

Snipers.

1. Sniping Post consists of one (1) observer and one (1) rifleman with relief of two (2) men posted close by.
2. Sniping post should be well concealed.
3. Daily report from each post of
 - (a) Any work done by enemy.
 - (b) Enemy seen; place, uniform, apparent age, physique, equipment.
 - (c) Any other information of interest.
4. Sniper to be appointed from each section.
5. Must be intelligent, alert, good scout, good shot, courageous.
6. Snipers should spend 24 hours in trenches with those of command which theirs is to relieve, before relief takes place.
7. No night work required of these men since they must be constantly on the alert during the day.

Organization of a Platoon — Rifle Company — Table No. 7.

PLATOON

Platoon Headquarters

1 Lieut.
1 Sgt.
4 Privates.

1st Section	2d Section	3d Section	4th Section
Hand Bombers	Rifle Grenadiers	Riflemen	Auto-Riflemen
3 Teams, each	1 Team of	1 Sgt.	1 Sgt. and 2 Corps.
1 Leader	6 Grenadiers*	2 Squads of	4 Teams, each
1 Thrower	3 Carriers	8 men each	1 Gunner
1 Carrier	(May be	*4 Extra	2 Carriers
1 Scout	subdivided)	riflemen	
2 Corps.	2 Corps.	1 Sgt. and 2 Cpl.	1 Sgt. and 2 Cpls.
4 Pvs. 1st Cl.	1 Pvt. 1st Cl.	6 Pvs. 1st Cl.	4 Pvs. 1st Cl.
6 Pvs.	6 Pvs.	12 Pvs.	8 Pvs.
Total—12	Total—9	Total—21	Total—15

*Runners: Attached to 3d Section and 7th Squad. With Platoon commander when company is in extended order formation.

Suggested Organization of Platoon in Close Order and for Administration.

1st Squad	2d Squad	3d Squad	4th Squad	5th Squad	6th Squad	7th Squad
Bomber Section (less 1 bomber team)	$\frac{1}{2}$ Auto Rifle Section i. e., Cpl. and 2 teams	$\frac{1}{2}$ Auto Rifle Section i. e., Cpl. and 2 teams	Grenadier Section	1 Rifle Squad	1 Rifle Squad	1 Bomber Team plus 4 extra *riflemen
1 Corp. 7 Pvts.	1 Cpl. 6 Pvts.	1 Cpl. 6 Pvts.	1 Cpl. 7 Pvts. (Extra Cpl. in File Closers)	1 Cpl. 7 Pvts.	1 Cpl. 7 Pvts.	1 Cpl. 7 Pvts.

Right Guide—Automatic Gun Sgt. Left Guide—Rifle Sgt.
Chief of Platoon—Lieut. File closer or acting 1st Sgt.—Sgt.-Asst.

Note.—If desirable the 4 mechanics and 4 privates (signalmen) who are not assigned to platoons regularly, can be used to fill the blank files in the 2d and 3d squads.

* Runners: Attached to 3d Section and 7th Squad. With Platoon commander when company is in extended order formation.

Deployments.

GENERAL PRINCIPLES:

(a) The following plans for deployment are not to be regarded as rigid. The positions of the various squads depends upon tactical considerations.

(b) The platoon in attack will be used only for accomplishment of its offensive mission. Moppers-up, additional carriers, etc., will be furnished by other organizations.

A. Being in line, to form single skirmish line to the front.

1. As skirmishers (so many) paces, guide right (left or center). 2. March.

Executed as described in pars. 206 and 208, i.d.r.

Normal interval to be ordered, 4 or 5 paces.

This formation to be regarded as exceptional.

B. Being in column of squads, to form single skirmish line. Same command as in (A). Executed as described in pars. 207 and 208, i.d.r.

C. Being in line to form double skirmish line to the front (*i. e.*, to take the "Formation for Attack" in the diagram.)

1. In two lines. 2. As skirmishers (so many) paces, guide right (left or center). 3. March.

Executed according to the principles in pars. 206 and 208, i.d.r., except that at the command March the even-numbered squads stand fast while the odd-numbered squads form the first line by deploying on the base squad as in the case of deployment in single line. Similarly, the even-numbered squads form the second line by deploying on their base squad after the odd-numbered squads have moved forward about 20 paces.

SKIRMISH LINES AT 5 PAGES
A COMPANY

SKIRMISH LINES
C COMPANY

25
YDS.

150
YDS.

350 YDS.

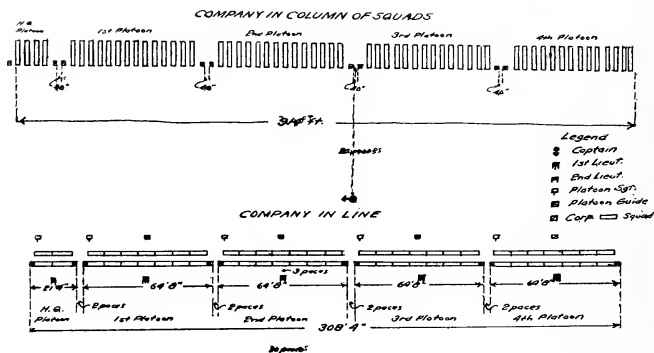
B COMPANY, SECTION COLUMNS

D COMPANY, SECTION COLUMNS

NORMAL BATTALION FORMATION IN ATTACK

D. Being in line or column of squads to deploy in line of squad columns in one or two lines. Use same commands and execute in same manner as described in (A), (B), (C), except that in the command "Squad Columns" is substituted for "as skirmishers," and in the execution each corporal on approaching the line forms his squad in "squad column" instead of deploying it as skirmishers.

PLATE #22



NOTE: Interval between platoons in line should be 100 paces in order to get 40' 8" distance when forming column - 2 paces, however, will answer.

E. G. 1. In two lines — 2. Squad columns (so many) paces, Guide right (left or center) — 3. March.

This gives a "Formation of Approach" as the French describe it, or as an "Artillery Formation" as the British describe it, which may be used directly or indirectly (by means of echelons) for advancing when not liable to infantry fire.

1. Squad columns (so many) paces, 2. Guide right (left or center). Executed in the same manner as similar movement described in i.d.r. 126.

1. The platoon is now a complete fighting unit within itself. It contains riflemen, bombers, auto-

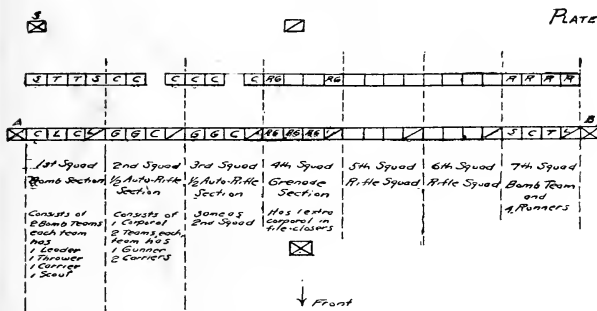
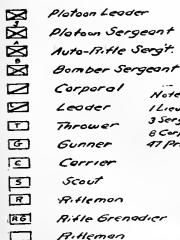
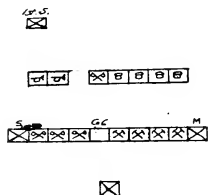


PLATE #23



SKETCH OF
INFANTRY PLATOON

1st	1st Sergeant
2nd	Mass Sergeant
3rd	Supply Sergeant
4th	Signalman
5th	Bugler
6th	Mechanic
7th	Cook
8th	Comp. Clerk
9th	Leader



HEADQUARTERS PLATOON

riflemen, and rifle grenadiers. With this combination the platoon commander has, under his immediate control, all the different kinds of fire available to the infantry.

2. This formation was developed so that the platoon commander could meet the different contingencies that arise from being opposed by points of resistance in a "Trench-to-Trench" attack or the "Semi-Open-Warfare;" that is the secondary stage of a push.

3. When strong opposition develops, the principle on which the platoon works is to develop or surround the point of resistance, the platoon acting either alone or in conjunction with neighboring platoons. The four different kinds of fire are then used to their best advantages to silence or diminish the enemy fire thus making this manoeuvre possible.

4. In order to obtain success it is first necessary to impress on the officers and men that the primary advantage of the entire formation is its mobility, and the scope it gives to the initiative of the platoon section, squad and team leaders. In studying this formation it is first necessary to free the mind of all parade ground formations and to feel that there is nothing to hinder any desired movement of the sections, so long as the movement is not contrary to the operation orders for the attack. Until this idea is grasped thoroughly no progress can be made.

5. There is no typical or "normal formation." The one given at the beginning of this instruction here is a drill or parade ground formation, and while it may be used under actual conditions of warfare, it is simply utilized at this time as a basis from which the necessary variations may be worked out. In an attack, every platoon in the battalion may use a different formation.

6. The formation to be used is decided upon after a careful study of air-photographs. As far as possible all points of resistance are picked out and the best method of meeting the situations that may arise are then considered. The platoon is then arranged so as to best facilitate this manoeuvre. It must be realized that there will be other platoons on the flanks and in the rear,

and their dispositions must be studied with a view of their probable bearing on the points of resistance.

7. In order to know how to get results it is first necessary to have a very clear conception of the uses and limitations of the different weapons in the platoon.

Briefly they can be used in the following ways:

(a) The auto-rifles open up a point blank fire on the strong point as soon as it is discovered. Their function is to either draw the fire of the enemy or to silence him by a hit or forcing him to take cover. Their work may be compared to the work of the field artillery in a barrage. They cover the movement of the infantry across the open. The auto rifles so place themselves at such points that their line of fire will in no way interfere with the manoeuvre of the commander of the platoon or the remaining units of the platoon interfere with the effective use of the auto rifles of the platoon.

(b) The rifle grenadiers advance at once just as close as possible, but at all costs to within effective grenade range. They then take cover in shell holes, trenches, etc., and open up a rapid fire. They are the long distance howitzers of the platoon and are very valuable. By a well placed grenade the whole resistance may be overcome. This section usually works around a flank.

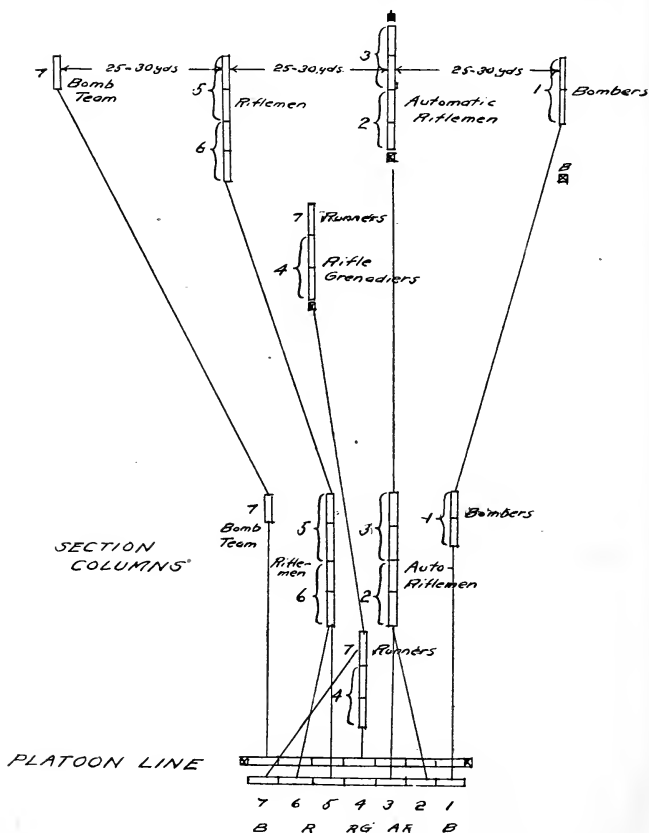
(c) The riflemen work up by squad as far as practicable and to a flank, when an opportunity presents itself, the squad opens fire in such a manner as to protect advance of other squads or teams.

(d) The bombers endeavor to get well around behind the enemy and taking advantage of cover get to within bomb range. They may be compared to the close range howitzers or trench mortars.

When all four sections are in action at proper ranges, the opposition can probably last but a short time, and as soon as the machine guns cease fire the platoon, especially the riflemen, go after the remainder of the garrison with the bayonet.

Plato
#27

SECTION COLUMNS FULLY EXTENDED



It may happen that the barrage put up will so demoralize the enemy that the riflemen can advance before his machine guns are even put out of action. This operation allows the rifle men to get in with the bayonet, if the resistance is not sooner overcome.

When the different sections are getting to their places, they usually find enough shell holes or old trenches to obtain cover. They should not move as entire sections, but as small groups of three or four at a time.

8. After the encircling movement has once begun, the platoon commander loses all control, and the action is then conducted by the section, squad or team leaders. They must be trained to act on their own initiative, as further orders are rarely practicable.

The resistance will finally be overcome, either because the enemy will retreat or surrender under the menace of encirclement, or by the losses caused by our fire or by the attack at close range of our bombers or else by the final assault with the bayonet led by our riflemen.

It must be remembered that under an artillery barrage it is never possible to issue verbal orders, so the sections must be trained to understand and obey the arm signals of its officer, or more often to work without orders.

9. A sequence of command must be arranged in each section, squad and team down to the last man.

REMARKS REGARDING THE FORMING OF WAVE FROM CLOSE ORDER.

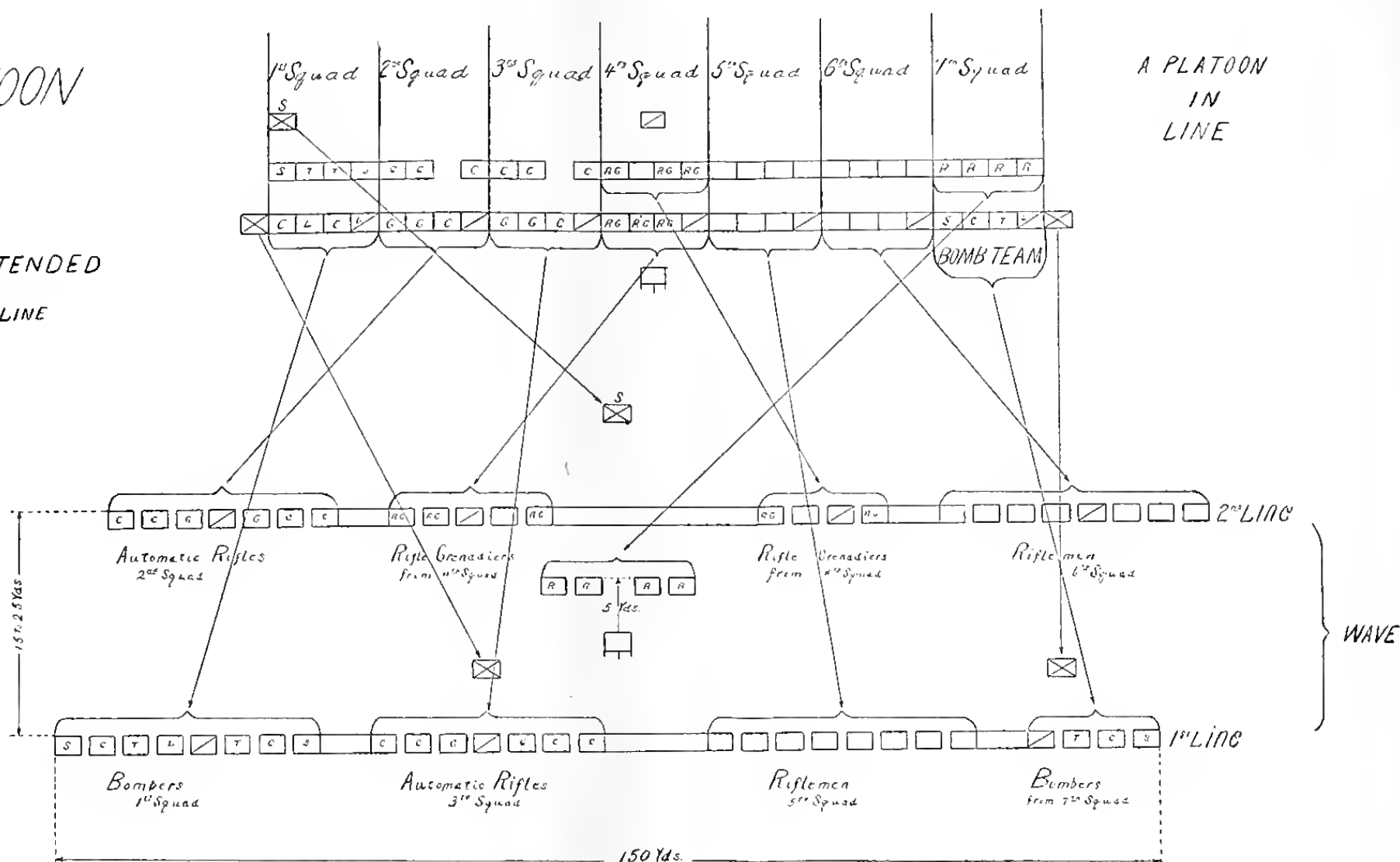
The sketch of deployment attached is an illustration of one of the formations that may be adopted. It is given as an example. Any other wave formation may be practically as easily formed up. The platoon commander simply calls out the squads he wants in the first line.

It must not be imagined that this transition from close order to extended is done in the field when actually under fire or as a result of surprise.

PLATOON FROM LINE

TO
DOUBLE EXTENDED
SKIRMISH LINE

A PLATOON
IN
LINE



NOTE: In deployment
1st-3rd-5th on first line
2nd-4th-6th on second line
7th on 1st line and intermediate line

Before the platoon goes into an attack it is all arranged so as to allow it to be changed with ease from column of sections at extended intervals (formation for approach) to the wave formation decided upon. This arrangement is made when the platoon is miles to the rear.

When the change is made from column of sections to the wave formation there must be no crossing of sections as they go to their places.

Some of the Many Questions a Platoon Commander Should Ask Himself on Taking Over a Trench, and at Frequent Intervals Afterwards.

1. *I am here for two purposes: To hold this line under all circumstances, and to do as much damage as possible to the enemy? Am I doing all I can to make this line as strong as possible? Am I as OFFENSIVE as I might be with organized snipers, sniperscopes, rifle grenades, catapults, etc., and patrols?*

2. Do I connect up all right with the platoons on my right and left? Do I know the position of my nearest support?

3. Does every man know his firing position and can he fire from it, over the parapet, at the foot of the wire?

4. Where are my S. A. A. and bomb stores? Are they under cover from the weather?

5. Do all my men know their duties in case of attack — bombers especially?

6. Are all my rifles and ammunition clean and in good order? Have all the men got rifle covers? Are the magazines kept charged?

7. Is my wire strong enough?

8. Are my parapets and traverses bullet-proof everywhere?

9. Where are my sally ports?

10. Where are my listening posts? Are my listening patrols properly detailed?

11. What points in front particularly require patrolling at night?

12. Are my sentries in their right places? Are they properly posted by N. C. O's.? Have they received proper instructions?

13. Have I got the S. O. S. message in my pocket, and do I know the orders regarding its use?

14. Are the trenches as clean and as sanitary as they might be? Are live rounds and cases properly collected? Are my bags for refuse and empties in position?

15. Are my trenches as dry as I might make them?

16. Am I doing all I can to prevent my men getting "Trench Feet"?

17. How can I prevent my parapets and dugouts from falling in?

18. Have I got at least one loophole, from which men can snipe, for every section? Have I pointed out to Section Commanders the portion of the enemy's trench they are responsible for keeping under fire, and where his loopholes are?

19. Have my men always got their smoke helmets on and are they in good order?

20. Are the arrangements, in case of gas attack, complete and known to all ranks?

21. Are the orders as to wearing equipment carried out?

22. Are my men using wood from the defences as firewood?

23. Are my men drinking water from any but authorized sources?

24. *I am here for two purposes: To hold this line under all circumstances, and I do as much damage as possible to the enemy? Am I doing all I can to make this line as strong as possible? Am I as OFFENSIVE as I might be with organized snipers, sniperscopes, rifle grenades, catapults, etc., and patrols?*

Defensive Measure Against Gas Attacks.

I. Introduction.

A. General Considerations:

In the absence of suitable means of protection the poison gases used in war are extremely deadly and the breathing of only very small quantities of them may cause death or serious injury. This being the case, it is essential that not the slightest time should be lost in putting on the anti-gas device on the gas alarm being given.

It cannot be too strongly insisted on that the measures to meet hostile gas attacks afford *perfect protection*, and if they are carried out properly no one will suffer from gas poisoning.

The whole basis of protecting troops against gas lies (a) in keeping the appliances in perfect working order; (b) in learning to adjust them rapidly under all conditions, and (c) in ensuring that every man is given immediate warning. These results can only be attained:

- (1) By frequent and thorough inspection of all protective appliances.
- (2) By thorough instruction and training in their use.
- (3) By every man understanding and complying with all standing orders on the subject of defense against gas.

If these are effectually carried out, there is nothing to fear from hostile gas attacks. Officers must impress this on their men, as an important object of all anti-gas instruction should be to inspire complete confidence in the efficacy of the methods which are adopted.

B. Nature of Gas Attacks:

(1) GAS CLOUDS:

This method of making a gas attack is entirely dependent on the direction of the wind. The gas is carried up to the trenches compressed in steel cylinders.

These are dug in at the bottom of the trench and connected with pipes leading out over the parapet. When the valves of the cylinders are opened, the gas escapes with a hissing sound, which, on a still night, can frequently be heard at a considerable distance. It mixes with the air and is carried by the wind towards the opposing trenches, spreading out as it goes forward. A continuous wave of gas and air is thus formed, the color of which may vary:

- (a) Because of the weather conditions. In very dry air it may be almost transparent and slightly greenish in color, while in damp weather it forms a white cloud.
- (b) Because it may be mixed with smoke of any color.

A cloud attack can only take place when there is a steady but not too strong wind blowing from the enemy's lines towards our own. A wind between 4 and 8 miles an hour is the most likely condition. An 8-mile wind will carry the gas cloud twice as quickly as a man walks rapidly.

Gas attacks may occur at any time of the day, but are most likely to be made during the night or in the early morning.

Gentle rain is without appreciable effect on a gas attack, but strong rain washes down the gas. Fogs have hardly any effect and may, in fact, be taken advantage of to make an attack unexpectedly. Water courses and ponds are no obstruction to a gas cloud.

The gas used by the enemy is generally a mixture of chlorine and phosgene, both of which are strongly asphyxiating. The gases are heavier than air, and therefore, tend to flow along the ground and into trenches, shelters, craters and hollows. The gas cloud may flow round slight eminences, thus leaving patches of country which remain free from gas.

Chlorine and phosgene strongly attack the mucous membranes of the respiratory organs, causing bad

coughing. In strong concentrations of gas, or by longer exposure to low concentrations, the lungs are injured and breathing becomes more and more difficult and eventually impossible, so that the unprotected man dies of suffocation. Death is sometimes caused by two or three breaths of the gas. Even when very dilute, chlorine can be recognized by its peculiar smell, which is like chloride of lime, but stronger and more irritating.

Both chlorine and phosgene also exert a strongly corrosive action on metals, so that the metal parts of arms must be carefully protected by greasing them.

The speed with which the gas cloud approaches depends entirely on the wind velocity. Gas attacks have been made with wind velocities varying from 3 to 20 miles per hour, *i. e.*, from $1\frac{1}{2}$ to 10 yards per second. In a 9-mile wind, the gas would reach trenches 100 yards distant in 20 seconds.

Gas attacks have been made on fronts varying from 1 to 5 miles; their effects at points up to 8 miles behind the front trenches have been sufficiently severe to make it necessary to wear helmets.

(2) GAS PROJECTILES:

The use of these is not entirely dependent on the direction of the wind. In gas projectiles such as shells, hand grenades, and trench mortar bombs, a part or the whole of the explosive charge is replaced by a liquid which is converted into gas by the explosion. The explosive force and noise of detonation of these projectiles is less than that of the ordinary kind, and a large number of them are usually discharged into a comparatively small space. After the explosion, the irritant chemicals form a small gas cloud, though some may sink to the ground and remain active for a considerable time.

For using gas shells, the best condition is calm, or a wind of low velocity.

Gas projectiles can be used in all types of country. Woods, bushes, corn fields and clumps of buildings may hold the gas active for a considerable time.

Two kinds of shell gases are used by the enemy, viz., lachrymators, which mainly affect the eyes, and poison gases, which may affect the eyes and are just as deadly as the gases used in the form of clouds.

(1) TEAR, OR LACHRYMATORY SHELLS:

These shells on explosion drive the liquid chemical which they contain into the air as a mist. They cause the eyes to water strongly and thereby gradually put men out of action.

Their actual smell may be slight. Large concentrations of lachrymators begin to affect the lungs and cause sickness, coughing and general irritation.

(2) POISON SHELLS:

Besides the comparatively harmless lachrymators the enemy also uses projectiles which contain a gas, the action of which is very similar to that of phosgene. Because of their slight detonation, these shells are liable to be mistaken for blinds, but they emit large quantities of a gas which attacks the lungs strongly and is very dangerous, and even in slight cases may cause serious after effects.

(3) SMOKE:

The enemy may make use of smoke, either in the form of a cloud or emitted from shells and bombs. Smoke may be used with gas or between gas clouds; it may also be used alone to distract attention from a real discharge of gas, to cover the advance of infantry, or merely as a false gas attack.

(4) MINE AND EXPLOSION GASES:

The poisonous gases which occur in mines, and which are formed in large quantities when high explosive goes off in an enclosed space, *e. g.*, from a direct hit in a shelter, or on the explosion of a charge in a mine, are not protected against by the ordinary anti-gas appli-

ances. The chief of these gases is carbon monoxide. Protection against such gases will not be considered in these notes.

Officers are held responsible that all the anti-gas appliances for protecting their men are maintained in perfect condition, and that all ranks under their command are thoroughly trained in the use of these appliances and in all other measures which may affect their safety against gas.

Summary of Protective Measures:

- (a) Provision to each man of individual protective devices.
- (b) Arrangement for the inspection of those appliances and training in their use and instruction in all other measures of gas defense.
- (c) Provision of protected and gas-proof shelters.
- (d) Weather observations to determine periods when the conditions are favorable to a hostile gas attack.
- (e) Arrangement of signals and messages for immediate warning of a gas attack.
- (f) Provision of appliances for clearing gas from trenches and shelters.

C. Protection of Shelters:

(1) METHODS OF PROTECTION:

Protection of dugouts, cellars, buildings, etc., is given if all entrances are closed by well-fitting doors or by blankets sprayed with hypo. solution. Practically no gas passes through a wet blanket, and the protection depends on getting a good joint at the sides and bottom of a doorway, so as to stop all draughts. This can be effected by letting the blanket rest on battens, fixed with a slight slope, against the door frame. The blanket should overlap the outer sides and a fold should lie on the ground at the bottom. A pole is fastened to the blanket, which allows the latter to be rolled up on the frame and causes it to fall evenly.

Wherever possible, particularly where there is likely to be movement in and out of the shelter, two blankets fitted in this way but sloping in opposite directions should be provided. There should be an interval of at least three feet between the two frames, and the larger this vestibule is made the more efficient is the dugout.

When not in use, the blankets should be rolled up and held so that they can be readily released, and should be sprayed occasionally with water or a little Vermorel sprayer solution.

If the blankets become stiff from a deposit of chemicals, they should be sprayed with water.

All ranks must be taught how to use gas-proof dugouts, *e. g.*, how to enter a protected doorway quickly, replacing the blanket immediately, and carrying in as little outside air as possible.

The protection afforded by these means is just as complete against lachrymatory gases as it is against cloud gas and poisonous shell gases.

(2) SHELTERS WHICH SHOULD BE PROTECTED:

The following should always be protected:

Medical aid posts and advanced dressing stations; Company, Battalion and Brigade Headquarters; signal shelters and any other place where work has to be carried out during a gas attack.

In addition to the above, it is desirable to protect all dugouts, cellars and buildings within the shell area, particularly those of artillery personnel. It should be noted, however, that the protection of dugouts for troops in the front line of trenches is usually inadvisable on account of the delay involved in getting men out in time of attack. It is desirable to protect stretcher bearers' dugouts with a view to putting casualties in them.

D. Protection of Weapons and Equipment:

Arms and ammunition and the metal parts of special equipment (*e. g.*, telephone instruments) must be care-

fully protected against gas by greasing them or keeping them completely covered. Otherwise, particularly in damp weather, they may rust or corrode so badly as to refuse to act. A mineral oil must be used for this purpose. The following in particular should be protected:

(1) SMALL ARMS AND S. A. A.

Machine guns and rifles must be kept carefully cleaned and well oiled. The effects of corrosion of ammunition are of even more importance than the direct effects of gas upon machine guns and rifles.

Ammunition boxes must be kept closed. Vickers belts should be kept in their boxes until actually required for use. The wooden belt boxes are fairly gas-tight, but the metal belt boxes should be made gas-tight by inserting strips of flannelette in the joint between the lid and the box.

Lewis magazines should be kept in some form of box, the joints of which are made as gas-tight as possible with flannelette.

A recess should be made, high up in the parapet if possible, for storing ammunition and guns. A blanket curtain, moistened with water or sprayer solution, will greatly assist in keeping the gas out.

(2) HAND AND RIFLE GRENADES:

Unboxed grenades should be kept covered as far as possible. All safety pins and working parts, especially those made of brass, should be kept oiled to prevent their setting from corrosion by the gas.

(3) LIGHT TRENCH MORTARS AND THEIR AMMUNITION:

As far as the supply of oil permits, the bore and all bright parts of light trench mortars and their spare parts should be kept permanently oiled. When not in use, mortars should be covered with sacking or similar material.

Unboxed ammunition should be kept covered as far as possible and the bright parts oiled immediately after

arrival. Ammunition which has been in store for some time should be used up first.

Sentries must be prepared to give the alarm on the first appearance of gas, as a few seconds delay may involve very serious consequences. Signals must be passed along by all sentries as soon as heard.

The earliest warning of a gas attack is given:

- (a) By the noise of the gas escaping from the cylinders.
- (b) By the appearance of a cloud of any color over the enemy's trenches. If the attack takes place at night, the cloud will not be visible from a distance.
- (c) By the smell of the gas in listening posts.

(1) ACTION TO BE TAKEN IN THE TRENCHES ON GAS ALARM:

- (a) Respirators to be put on immediately by all ranks (a helmet, if no box respirator is available).
- (b) Rouse all men in trenches, dug-outs and mine shafts, warn officers and artillery observation posts and all employed men.
- (c) Artillery support to be called for by company commanders by means of prearranged signals.
- (d) Warn battalion headquarters and troops in rear.
- (e) All ranks stand to arms in the front trenches and elsewhere where the tactical situation demands.
- (f) Blanket curtains at entrances to protected shelters to be let down and carefully fixed.
- (g) Movement to cease except where necessary.

(2) ACTION TO BE TAKEN IN BILLETTS AND BACK AREAS:

- (a) All men in cellars or houses to be roused.

- (b) The blanket curtains of protected cellars, etc., to be let down and fixed in position.
- (c) Box respirators to be put on immediately, the gas is apparent.

H. Action During a Gas Attack:

(1) PROTECTIVE MEASURES:

There should be as little moving about and talking as possible in the trenches. Men must be made to realize that with the gas now used by the enemy, observance of this may be essential for their safety.

When an attack is in progress, all bodies of troops or transport on the move should halt and all working parties cease work until the gas cloud has passed.

If a relief is going on, units should stand fast as far as possible until the gas cloud has passed.

Supports and parties bringing up bombs should only be moved up if the tactical situation demands it.

If troops in support or reserve lines of trenches remain in, or go into, dug-outs, they must continue to wear their anti-gas appliances.

Officers and N. C. O's. must on no account remove or open up the masks of the box respirators or raise their helmets to give orders. The breathing tube may be removed from the mouth when it is necessary to speak, but it must be replaced.

Men must always be on the look-out to help each other in case an anti-gas device is damaged by fire or accident. When a man is wounded, he must be watched to see that he does not remove his respirator or helmet until he is safely inside a protected shelter; if necessary, his hands should be tied.

Men must be warned that if they are slightly gassed before adjusting their respirators or helmets they must not remove them. The effect will wear off.

(2) TACTICAL MEASURES:

From the point of view of protection against gas, nothing is gained by men remaining in unprotected

dug-outs or by moving to a flank or to the rear. It is, therefore, desirable that on tactical and disciplinary grounds all men in the front line of trenches should be forbidden to do these things. In support or reserve lines where there are protected dug-outs, it is advisable for men to stay in them unless the tactical situation makes it desirable for them to come out.

Nothing is gained by opening rapid rifle fire unless the enemy's infantry attacks. A slow rate of fire from rifles and occasional short bursts of fire from machine guns will lessen the chance of their jamming from the action of the gas and tends to occupy and steady the infantry.

It should be remembered that the enemy's infantry cannot attack while the gas discharge is in progress and is unlikely to do so for an appreciable time — at least 10 minutes — after it has ceased. It is, in fact, a common practice for the enemy infantry to retire to the second and third line of trench whilst gas is being discharged. There is, therefore, no object in opening an intense S. O. S. barrage of artillery on "No man's land" during the actual gas cloud and it is advisable that the warning to the artillery of a gas attack should be a signal differing from the ordinary S. O. S. signal, as the latter may have to be sent later if an infantry attack develops.

It must be remembered that smoke may be used by the enemy at the same time as, or alternately with, the gas and that under cover of a smoke cloud he may send out assaulting or raiding parties. A careful look-out must, therefore, be kept; hostile patrols or raiders may be frustrated by cross-fire of rifles and machine guns and should an assault develop the ordinary S. O. S. procedure should be carried out.

I. Precautions Against Gas Shells:

Owing to the small explosion which occurs with these shells, they are liable to be mistaken for blinds, and

even when the gas is smelt men may not realize its possibly dangerous character at once and so may delay putting on respirators or helmets until too late. Men sleeping in dug-outs may be seriously affected unless they are roused. Men in the open air are unlikely to be seriously affected by poison gas shells, provided they put on respirators or helmets on first experiencing the gas. The following points should therefore be attended to:

(i) All shells which explode with a small detonation or appear to be blind should be regarded with particular attention; the respirator or helmet should be put on at the first indication of gas and blanket protection of shelters adjusted.

(ii) Arrangements must be made for giving a *Local* alarm in the event of a sudden and intense bombardment with poison gas shells, but care must be taken that this alarm is not confused with the main alarm. Strombos horns must on no account be used to give warning of a gas shell bombardment.

(iii) All shelters in the vicinity of an area bombarded with poison gas shells must be visited and any sleeping men roused.

(iv.) Box respirators or helmets should continue to be worn throughout the area bombarded with poison gas shells until the order is given by the local unit Commander for their removal.

Lachrymatory or "tear" shells are frequently used by the enemy for the purpose of hindering the movements of troops, for preventing the bringing up of supports, or for interfering with the action of artillery. Owing to the deadly nature of poison gas shells, however, the precautions given in paragraph 60 above, must be taken for all gas shells. The goggles are intended for use after lachrymatory bombardments only, in cases where the irritant gas persists in the neighborhood.

K. Action Subsequent to a Gas Attack:

1. GENERAL:

The most important measure to be taken after a cloud gas attack is to prepare for a further attack. The enemy frequently sends several successive waves of gas at intervals varying from a few minutes up to several hours and it is therefore necessary to be on the alert to combat this procedure. The following measures should be adopted as soon as the gas cloud has passed:

- (a) Removal of respirators.—Anti-gas fans should be used to assist in clearing the trenches of gas, so as to admit of respirators being removed. Respirators and helmets must not be removed until permission has been given by the Company Commander.

A sharp look out must be kept for a repetition of the gas attack, as long as the wind continues in a dangerous quarter.

2. MOVEMENT:

Owing to the enemy gas sometimes causing bad after effects, which are intensified by subsequent exertion, the following points should be attended to:

- (a) No man suffering from the effects of gas, however slightly, should be allowed to walk to the dressing station.
- (b) The clearing of the trenches and dugouts should not be carried out by men who have been affected by the gas.
- (c) After a gas attack, troops in the front trenches should be relieved of all fatigue and carrying work for 24 hours by sending up working parties from companies in rear.
- (d) Horses which have been exposed to the gas should not be worked for 24 hours if it can be avoided.

3. CLEARING DUGOUTS AND OTHER SHELTERS:

It is essential that no dugout be entered after a gas attack except with box respirators or helmets adjusted,

until it has been ascertained that it is free from gas. The only efficient method of clearing dugouts from gas is by thorough ventilation. The older method of spraying is not efficient.

An appreciable quantity of gas may be retained in the clothing of men exposed to gas attacks and also in bedding, coats, etc., left in shelters. Precaution should, therefore, be taken to air all clothing.

4. VENTILATION:

Natural Ventilation.— Unless a shelter has been thoroughly ventilated by artificial means, as described below, it must not be slept in or occupied without wearing respirators, until at least 12 hours after a gas attack. It must not be entered at all without respirators on for at least 3 hours. The above refers to cloud gas attacks. In the case of gas shell bombardments the times cannot be definitely stated, as they depend on the nature of the gas used and the severity of the bombardment. With lachrymatory gases the times after which shelters can be used without discomfort may be considerably longer than those mentioned above.

Ventilation by Fire.— All kinds of shelters can be efficiently and rapidly cleared of gas by the use of fires. Shelters with two openings are the easiest to ventilate and where possible, dugouts with only one entrance should have a second opening made, even a very small one, to assist in ventilation.

In dugouts provided with a single exit at the end of a short passage, the best results are obtained if the fire is placed in the center of the floor of the dugout and at a height of about 9 inches.

In dugouts provided with a single exit at the end of a long and nearly horizontal passage, the best results are obtained if the fire is placed about one-third of the distance from the inner end of the passage.

In dugouts provided with two or more exits, the fire should be placed at the inner end of one of the exit passages.

In general, 1 pound of dry wood per 200 cubic feet of air space is sufficient for clearance of any gas. The best fuel is split wood, but any fuel which does not smoulder or give off thick smoke can be used. The materials for the fire, *e. g.*, the split wood, newspaper, and a small bottle of paraffine for lighting purposes, should be kept in a sand bag, enclosed in a biscuit tin provided with a lid. An improvised brazier should be kept ready for use.

The fire must be kept burning for at least ten minutes and the atmosphere in the shelter should be tested from time to time.

Ventilation by Fanning.—Dugouts can be ventilated by producing air currents in them by means of special anti-gas fans.

If no anti-gas fans are available, ventilation can be assisted by flapping with improvised fans such as sand bags, ground sheets, etc.

5. CLEANING OF ARMS AND AMMUNITION:

Rifles and machine guns must be cleaned after a gas attack and then re-oiled. Oil cleaning will prevent corrosion for 12 hours or more, but the first available opportunity must be taken to dismantle machine guns and clean all parts in boiling water containing a little soda. If this is not done, corrosion continues slowly even after oil cleaning and may ultimately put the gun out of action.

After a gas attack, S. A. A. should be carefully examined. All rounds affected by gas must be replaced by new cartridges immediately and the old ones cleaned and expended as soon as possible.

All hand and rifle grenades exposed to the gas should have their safety-pins and working parts cleaned and re-oiled.

All bright parts of light trench mortars, together with all accessories and spare parts exposed to the gas, must be cleaned and wiped dry as soon as possible after the

attack and in any case within 24 hours, after which they should be thoroughly coated afresh with oil. The same applies to ammunition which may have been exposed to the gas.

Ammunition which, for any reason, had not been oiled, must be cleaned and oiled and expended as soon as possible.

For details regarding the cleaning of guns and artillery ammunition and signal equipment, see paragraphs 116 and 123.

6. TREATMENT OF SHELL HOLES:

In the neighborhood of shelters or battery positions where gas from shell holes is causing annoyance, the holes and the ground round them should be covered with at least a foot of fresh earth. Shell holes so treated should not be disturbed, as the chemical is not thereby destroyed and only disappears slowly.

Concealment From Aerial Observers.

A. 1. An aeroplane cannot conduct reconnaissance at a height of less than 5,000 feet without being within easy range of anti-aircraft artillery; nor of less than 2,000 feet without coming into range of machine-gun and rifle fire.

2. To be observed from such heights, objects on the ground must be distinguished by:

- (a) Motion.
- (b) Color contrast.
- (c) Line contrast, or
- (d) Shadows.

B. Concealment:

- 1. (a) On warning of hostile aircraft, troops on the march should withdraw to the side of the road (if possible, into shade), or lie down flat in the road and remain motionless.

B. Concealment — (*Continued*):

- (b) If it is necessary to continue the march, this should be done in broken detachments, which are far less distinct than continuous column.
 - (c) Troops in a trench should crouch down in the shadowy side and remain motionless.
 - (d) Faces should never be turned up, as the high lights on cheek-bones and foreheads then show up distinctly.
 - (e) Bright metal on arms, equipment and head-gear must be kept covered.
2. Artillery wagon-trains, etc., should if possible be halted promptly on warning. When halted, their neutral coloring protects them.
3. Trenches are best concealed:
- (a) By avoiding, in construction, a too regular outline, and following as far as possible the contours of the ground.
 - (b) By coloring the parapet and parados to match the ground. This may be done most quickly by painted canvas; if the latter is not available, by planting or strewing the loose earth with surrounding herbage. In this work care must be taken not to make the covering itself too conspicuous by brightness or monotony of coloring.
 - (c) By covering the trench itself, where convenient, with a thin material, colored like the parapet and parados.
 - (d) By avoiding all overt movement of troops in the trenches under observation.
4. Buildings, *e. g.*, ammunition dumps, hangars, etc., can be completely concealed by being painted the color of the ground they stand on and fitted with canvas curtains, similarly painted and stretched from the eaves to the

B. Concealment — (*Continued*):

ground at a horizontal angle of 35 degrees.

These curtains completely eliminate shadows.

5. Success in each work of concealment by camouflage is best assured by the assistance of an aeroplane observer to test and correct it.

Orders Governing Intrenchment Problems at Second Plattsburg Training Camp.

HEADQUARTERS PLATTSBURG TRAINING CAMP,
PLATTSBURG BARRACKS, NEW YORK.

SEPTEMBER 22, 1917.

DIVISIONAL ENTRENCHING PROBLEM.

General Situation:

The Salmon river forms the boundary line between two states, the "Blue" on the north and the "Red" on the south. War has been declared and the Red Army is mobilizing near Keeseville. Mobilization by the first Blue Army at Plattsburg has been completed.

Special Situation, Blue:

Our advanced troops are holding the line of the Salmon river against strong detachments of the Red Army. The commanding general of the Blue Army has decided to establish a second position on the line, *Bluff Point to the bend (248) in the Saranac river.*

The following order is issued by the Division Commander:

HEADQUARTERS, 101st Div.,
PLATTSBURG, N. Y.

23 Sept., '17, 9:00 A. M.

FIELD ORDERS, No. 1.

1. Our advanced troops are holding the line of the Salmon river.

2. This division and 1 Brigade 102 Division will entrench along the line: *Bluff Point — Chateaugay Branch Railroad — Saranac River (248).*

3. (a) The Chief of Artillery will prepare the positions and lines of communication for his Brigade, determine his sectors, and submit his plan of action.

(b) The 1st Brig. and 2 Bns. 267th Inf. will entrench the sector, *Saranac River* (248) to *Sand Road*, exclusive. The 2nd Brig. will entrench the sector *Sand Road to Bluff Point*, both inclusive. The supports will entrench on the line, *Saranac River* (182)—*Cliff Haven*.

(c) The Reserve — 1 Brig. 102 Div. less 2 Bns., will construct crossings on the *Saranac River* — under direction of the Chief of Engineers, and prepare them for defense.

(d) The Chief of Engineers will supply tools for entrenching and lay out the lines of entrenchments. He will repair the following trunk roads: *Peru Road*, *Sand Road*, *Lake-Shore Road*; and construct a transverse trunk line road from *Pulp Mill to O'Connell's Farm*, and the necessary tram lines. The Engineer Depot for stores and material will be established at *Plattsburg Barracks*.

(e) The Chief Signal Officer will establish necessary lines of communication, utilizing equipment at *Plattsburg Barracks*, *Central Station*. Aero Squadron at *Chazy*.

4. (a) The Chief Medical Officer will establish his dressing stations in the *Butts* of the rifle range and in ravine on *O'Connell's Farm*. A field hospital will be established at the *Lozier Works*.

(b) Ammunition train and supply train will be parked in the *Fair Ground*. Ammunition distributing stations at railroad spurs, *Plattsburg Barracks*, and *O'Connell's Farm*. The Division Ordnance Officer will locate the Ammunition Dumps along transverse trunk line road.

(c) Field trains, until further orders, at north end of *Plattsburg Barracks Reservation*. Distributing point, *Plattsburg Railroad Station* — Regimental

Supply Stations: *Saranac River* 182; intersection *Peru Road* and *Rifle Range Road*, *Sand Hole* in *Rifle Range*, *Sand Road* on *O'Connell's Farm*, *Ravine* on *O'Connell's Farm*.

(d) The commander of trains will establish traffic regulations for all roads.

5. Messages to *Statistical Office*.

Official copy:

J. A. BAER,
Genl. Staff,
Chief of Staff.

WOLF,
Major General.

Copies to:

Brig. and Regt. Commanders.
C. of E.
Div. Q. M.
C. S. O.
C. M. O.
Div. O. O.
C. of Tr.

HEADQUARTERS, 1ST BRIGADE, 101ST DIVISION,
PLATTSBURG BARRACKS, N. Y.

23RD SEPT., 1917, 6 P. M.

FIELD ORDERS

No. 1.

1. Strong detachments of the Red Army, now mobilizing at *Keeseville*, are south of the *Salmon River*. Our advance troops are holding the line of the *Salmon River*.

2. Our division and one brigade, 102nd Division, will entrench and occupy the line *Bluff Point-Chateaugay Branch (D. & H. R. R.)*, *Saranac River* (248). This brigade, reinforced by two Battalions, 267th Infantry, will entrench and occupy the sector, *Saranac River* (248), *Sand Road*, exclusive.

3. (a) The 1st and 2nd Battalions, 267th infantry will entrench and occupy the sector from the *Saranac River* to a point 600 yards east.

(b) The 266th Infantry, the sector from a point 600 yards east of the *Saranac River*, connecting with the trenches of the 267th Infantry, to a point 100 yards east of *Peru Road*.

(c) The 265th Infantry, the sector from a point 100 yards east of the *Peru Road*, and connecting with the trenches of the 266th Infantry, to the *Sand Road*, exclusive.

(d) The Brigade Machine Gun Battalion will organize and maintain strong points along line regimental reserves. The C. O. of this organization will, at once, consult with the regimental commanders relative to preparation of machine gun emplacements and probable need for re-enforcements within their respective sectors.

(e) The Brigade Signalmen will establish telephonic communications between Brigade and Regimental Headquarters.

4. (a) The regimental commanders and senior officers of the two battalions, 267th Infantry, will at once report to the Chief Engineer of the Division for plan of entrenchments in their respective sectors.

(b) Tools and materials for entrenching will be supplied at the trench sites.

5. Messages to Brigade Headquarters near *Peru Road*, east Savoy Hotel.

GOODRICH,
Brigadier General, Commanding.

Official Copy:

WM. KIRBY,
Major of Cavalry, U. S. R.,
Adjutant.

Copies to:

C. O., 265th Infantry.

C. O., 266th Infantry.

C. O., 1st and 2nd Battalions, 267th Infantry.

C. O., Brigade M. G. Co.

Headquarters, 101st Division.

HEADQUARTERS, 1ST BATTALION, 265TH INFANTRY,
PLATTSBURG BARRACKS, N. Y.
Oct. 16, 1917.

FIELD ORDERS

No. 1.

Blue print of trenches; scale 24 inches equals 1 mile.

1. The enemy strongly occupies a line of trenches immediately *South* of the *Chateaugay Branch Railroad*, the center of their line being about opposite the center sector of our first line of trench, *Sand Road-Target Range Fence*, their line of trenches being within 50 yards of the railroad at that point, and then retiring slightly from the railroad to the *East* and *West*.

The 264th Infantry occupies the section of trenches directly to the *East* of us and the 266th Infantry occupies the section of trenches directly to the *West* of us.

2. This battalion will take up a defensive position in the nearly completed line of trenches, *Sand Road-Target Range Fence*, and as rapidly as possible complete the trench system in the following order of work:

- a. Deepen all trenches to at least three feet.
- b. Construct latrines.
- c. Provide cover.
- d. Revet work previously done.

3. a. Front lines, *i. e.*, fire, communicating and support trenches: Company "B" will occupy the *East* sector, *i. e.*, *Sand Road* to *Belgium Boyau*, inclusive, including *Slum Boyau* and the salient at *South* end Reserve Trench immediately in rear of *East* end of Support trench.

Company "C" will occupy the *Central* sector, *i. e.*, from *East* sector (*Belgium Boyau*, exclusive), to *Cardona Boyau*, inclusive, including *Poire Boyau*.

Company "A" will occupy the *West* sector, *i. e.*, from *Central* sector (*Cardona Boyau*, exclusive), to and including salient near *Southwest* corner of *Target Range Fence*.

b. Reserve Line: Company "D" will occupy the line from the *Target Range Fence* on the *West* to a point 165 yards *East* of the *Verdun Salient*, one-half of the Company occupying the sector, *Target Range Fence*, to a point 75 yards *East* of the *Rams Horn Boyau*, including *Rams Horn Boyau*, and the other half of the Company occupying the sector from a point 75 yards *East* of the *Rams Horn Boyau* to a point 165 yards *East* of the *Verdun Salient*.

c. Machine Guns: Headquarters, 1st Platoon and 1st Platoon Machine Gun Company, will report to the Commanding Officer, Company "A," for assignment to the shell craters (converted) and dugouts (constructed for machine guns), four in all, in the *West* sector.

Headquarters, 2nd Platoon and Third Section (2nd Platoon) Machine Gun Company, will report to the Commanding Officer, Company "C," for assignment to the shell crater (converted), and dugout (constructed for machine gun), two in all, in the *Central* sector. Fourth section (2nd Platoon), Machine Gun Company, will report to the Commanding Officer, Company "B," for assignment to the shell crater (converted), two in all, in the *East* sector.

d. Trench Mortars: Two trench mortars have been assigned to the *Central* sector and the Commanding officer, Company "C," is charged with the construction of emplacements therefor and the manning of them.

4. a. Dressing stations have been established in the *Butts* of the rifle range and in ravine on *O'Connell's Farm*.

b. Ammunition distributing points are located at *Plattsburg Barracks* and *O'Connell's Farm*.

c. Regimental supply stations are located at *Saranac River* (182), intersection *Peru Road* and *Rifle Range Road*, *Sand Hole in Rifle Range*, *Sand Road* on *O'Connell's Farm*, and *Ravine* on *O'Connell's Farm*.

5. Battalion Headquarters are located in dugout in *Support* trench (*West Tremont*), midway between

Rams Horn and *Poire Boyaux*, to which place messages will be sent.

BOSCHEN,
Captain, 56th Infantry, Commanding.

Copies to:

- C. O., 265th Infantry.
- C. O., Companies A, B, C and D.
- C. O., M. G. Company.
- C. O., Headquarters Company.
- R. S. O.

HDQTRS. 1ST BATT., 265TH INFTRY,
PLATTSBURG BCKS., N. Y., Oct. 17, 1917.

FIELD ORDERS

No. 2

1. DISPOSITIONS:

- a. The assignment of companies to sectors is as announced in Field Orders No. 1, these headquarters.
- b. Company commanders are charged with the details of occupation of the trenches and the proper disposition of the "specialists" (bombers, grenadiers, auto-riflemen, etc.), directing particular attention to the active and passive areas of their sectors.

2. FIELDS OF FIRE: Company commanders must arrange for and obtain the best fields of fire in their own sectors, and provide for protection of visible areas in adjoining sectors by lateral fire.

3. IMPROVEMENTS OR CHANGES IN TRENCHES: Company commanders before making any changes or improvements in trenches will render to battalion headquarters brief recommendations of changes desired. These recommendations will be submitted at 11.00 a. m. and 3.00 p. m., after which hours the

battalion commander will inspect and if deemed necessary will be ordered.

4. ORGANIZATION FOR WATCHING AND OBSERVATION:

- a. Each company commander will organize a system for watching the enemy by day and will establish look-out posts for this purpose; this system will be augmented at night by patrols if necessary.
- b. The watching of the enemy must be continuous and long occupation of the sector will not warrant any laxity.

5. ORGANIZATION FOR SUPPLY:

- a. Company commanders will make the necessary details for obtaining supplies; these details to be in charge of Mess or Supply Sergeants and will not exceed three squads for each lettered company.
- b. *Food*: Machine guns details and members of the Medical Corps assigned to each sector are attached to the lettered companies for rations.
- c. Cooked food will be at the *Food Station* at 6.00 a. m., 11.50 a. m. and 5.00 p. m. daily, and will be distributed at that point.
- d. Company commanders will detail the Mess Sergeant, with an appropriate detail (about 2 squads) to proceed to *Food Station*, which is located at the wire entanglement on the west side of the *Target Range* about 400 yards north of *Brigade Headquarters*.
- e. The details mentioned above will proceed via trenches, leaving same at junction of *Tipperary* trench and *Rams Horn* boyau in the following order:
Co. D: Detail will clear junction *Rams Horn* boyau and *Tipperary* trench at 5.40 a. m., 11.10 a. m. and 4.40 p. m.

- Co. A: Detail will clear junction *Tremont* trench and *Rams Horn* boyau at 5.30 a. m., 11.00 a. m. and 4.30 p. m., proceeding via *Rams Horn* boyau.
- Co. B: Detail will clear junction *Tremont* trench and *Poire* boyau at 5.35 a. m., 11.05 a. m. and 4.55 p. m., proceeding via *Poire* boyau and *Tipperary* trench.
- Co. C: Detail will clear junction *Tremont* trench and *Slum* boyau at 5.40 a. m., 11.10 a. m. and 4.40 p. m., proceeding via *Slum* boyau and *Tipperary* trench.
- f. These details will return to their respective sectors via the indicated routes, moving in reverse order at five-minute intervals, and company commanders will make necessary arrangements for distribution of food within their respective sectors.
- g. Company commanders will cause the necessary police after each meal to insure sanitary condition of trenches.
- h. Food containers will be held in company until the next meal hour when they will be returned to the *Food Station*.
- i. *Water*: Water wagon will be at the *Food Station* from 10.00 a. m. to 4.30 p. m. daily.
- j. Containers for water will be furnished by Regimental Supply Officer at the *Food Station*.
- k. All men will carry full canteens of water when entering the trenches.
- l. Company commanders will detail the Mess Sergeant, with an appropriate detail (about 2 squads), to proceed to the *Food Station* to procure water in containers; these details will proceed via the routes indicated in paragraph 5, section "e": Co. D, 2.00 p. m.; Co. A, 2.05 p. m.; Co. B, 2.10 p. m.; Co. C, 2.15 p. m.

- m. These details will return to their respective sectors in reverse order at five-minute intervals.
- n. *Miscellaneous*: Details for obtaining tools, ammunition, trench supplies, etc., will be arranged for as required.
- o. Requisitions for miscellaneous supplies required will be submitted by company commanders to the Regimental Supply Officer not later than 3.00 p. m., October 17, 1917.

6. ORGANIZATION FOR LIAISON:

- a. The Signal Officer will establish necessary telephonic communications.
- b. Each organization will detail one runner to report to the battalion commander at regimental headquarters at 8.00 a. m.
- c. Four runners will be detailed for duty with each company headquarters and one runner will be detailed for duty with each platoon headquarters. These runners should be lightly equipped and wear a distinctive mark.
- d. At least two men per section must be able to act as guides to all company headquarters of the battalion.
- e. Verbal messages will not be sent by runners; all messages must be written.
- f. Company commanders, or their representatives, will report daily at battalion headquarters at 5.00 p. m.
- g. There must be accurate communication between platoons in company, and companies in battalion, in order to insure co-ordinated action.

7. DEFENSE:

- a. Immediately after the occupation of the trenches, company commanders will make a careful estimate of all tactical situations presented in their sectors and will plan for a stubborn defense. Care must be exercised in

- providing for defense in depth and lateral defense. The front line trenches of each sector will be held until actually entered by the enemy, and no sector will be abandoned until the occupants are actually forced out.
- b. The main line of resistance will be the support trenches (*Tremont*) and special attention must be given to the preparation for defense. If the front line trenches of any sector be captured by the enemy there will be no withdrawal from any other sector of the front line trenches for the purpose of establishing a continuous line in the support trench.
 - c. The company commander of the reserve will organize parties for counterattacks and these parties will be held in readiness at convenient points to insure prompt movement to the front.
 - d. Continuous occupation of the trenches without fire action must not cause a feeling of security and result in being surprised by the enemy.
8. **STAND TO:** "Stand to" will take place at 5.00 a. m. and 5.00 p. m., daily. At this formation every available man will be present. Rifles, ammunition, equipment, clothing, etc., will be inspected. Rapid loading will be practiced. The firing position of every man will be tested to see whether he can hit the bottom edge of our wire. Gas helmets and respirators will be inspected if worn. After "stand to" in the morning and before "stand to" in the evening rifles will be thoroughly cleaned and oiled.
9. **TRENCH ORDERS:**
- a. Current "Trench Standing Orders" recently published from Brigade Headquarters are in force.

- b. During the occupation of the trenches it will be assumed that the trenches are under the observation and fire of the enemy and all movement in the trenches will be conducted accordingly. All movements of troops, either individuals or groups, will be via the trenches at all times.
- c. No one will be allowed to go overland between trenches or to enter the trenches by the flank. All persons will enter the trenches from the reserve trenches and no visitors will be allowed in the trenches except on passes issued from the Regimental Headquarters.
- d. Commanding officers, Companies A and B, are responsible for the posting of the necessary sentinels along the flanks of the position (during the day), with instructions covering the provisions contained in paragraph 9, sections "b" and "c."

10. REPORTS:

- a. Company commanders will submit by 1.00 p. m., October 18, 1917, a report showing the dispositions and plan of defense of their respective sectors.
- b. Frequent reports of information obtained and any change of conditions at the front will be made to battalion headquarters when necessary.

BOSCHEN,
Captain, 56th Infantry.
Commanding.

Copies to:

C. O. 265th Infy.
C. O. Cos. A, B, C and D.
C. O. M. G. Co.
C. O., Hdq. Co.
R. S. O.

Company Organization (in Detail):

Company Headquarters:

- 1 Captain, commanding company,
- 1 First Lieutenant (senior), second in command,
- 1 First Sergeant, armed with pistol,
- 1 Mess Sergeant, armed with rifle,
- 1 Supply Sergeant, armed with rifle,
- 1 Corporal, company clerk, armed with rifle,
- 4 Mechanics, armed with rifle,
- 5 Wagoners (from Supply Company),
- 4 Cooks, armed with rifle,
- 2 Buglers, armed with pistol,
- 4 Privates, first class, company agent and signalmen.

Equipment: 15 rifles, 5 pistols, 8 automatic rifles (for replacement), 40 trench knives (to be distributed as needed), 2 bicycles. Following from Supply Company: 1 rolling kitchen, 4-mule; 1 combat wagon, 4-mule; 1 ration and baggage wagon, 4-mule; 1 ration cart, 2-mule; 1 water cart, 2-mule; 16 mules, draft.

4 Platoons, each organized as follows (numbered 1 to 4 in company):

Headquarters:

- 1 First Lieutenant; 1st and 4th Platoons commanded by First Lieutenants; 2nd and 3rd Platoons commanded by Second Lieutenants, armed with pistol.

- 1 Sergeant, assistant to platoon commander, armed with pistol and rifle.

Equipment: 1 rifle, 2 pistols.

1st SECTION: Bombers and rifle grenadiers:

- 1 Sergeant, armed with pistol and rifle,
- 3 Corporals, armed with pistol and rifle, 1 trained as rifle grenadier; remainder trained as bombers,

- 6 Privates, first class, 2 armed with pistol and rifle, and remainder with rifle only; 1 trained as rifle grenadier, and remainder as bombers.
- 12 Privates, armed with rifles; 4 trained as rifle grenadiers, remainder trained as bombers.

Equipment: 22 rifles, 6 pistols.

2nd SECTION: Riflemen:

- 2 Corporals, armed with pistols and rifles,
3 Privates, first class, armed with rifle,
7 Privates, armed with rifle,

Equipment: 12 rifles, 2 pistols.

3rd SECTION: Riflemen:

- 2 Corporals, armed with pistol and rifle,
3 Privates, first class, armed with rifle,
7 Privates, armed with rifle.

Equipment: 12 rifles, 2 pistols.

4th SECTION: Auto-riflemen:

- 1 Sergeant, armed with pistol and rifle,
1 Corporal, armed with pistol and rifle,
3 Privates, first class; 1 armed with rifle, 2 armed with pistols; auto-rifle gunners, including 1 extra,
6 Privates, armed with rifle.

Equipment: 9 rifles, 4 pistols, 2 auto-rifles.

NOTE.—Sections numbered from 1 to 16 in company.

Personnel:

Commissioned:

Captain	1
First Lieutenants	3
Second Lieutenants	2
	<hr/>
Total	6
	<hr/> <hr/>

Enlisted:

First Sergeant	1
Mess Sergeant	1
Supply Sergeant	1
Sergeants	12
Corporals	33
Mechanics	4
Wagoners (from Supply Company).....	(5)
Cooks	4
Buglers	2
Privates, first class	64
Privates	128
<hr/>	
Total	250
<hr/> <hr/>	

Equipment:

Rifles	239
Pistols	69
Auto rifles	16
Trench knives	40
Bicycles	2
From Supply Company:	
Rolling kitchen, 4-mule.....	1
Combat wagon, 4-mule.....	1
Ration and baggage wagon, 4-mule.....	1
Ration cart, 2-mule.....	1
Water cart, 2-mule	1
Mules, draft	16
<hr/> <hr/>	

Trench Standing Orders.

1. **Duties.**—A. One officer per company and one non-commissioned officer per platoon will always be on duty. During their tour of duty they will not be in their dugouts. They will frequently visit all trenches occupied by their units. Every listening post will be visited at least once by an officer during his tour of duty.

B. The officer and non-commissioned officer on duty will, when his tour of duty is completed, turn over to the officer or non-commissioned officer relieving him all orders, a report of the work in progress, if any, and any other information of use.

C. At night the officer and non-commissioned officer on duty will frequently patrol the trench line, to see that the sentries are alert and to receive any reports they may desire to make.

D. The non-commissioned officer coming on duty will go round and post new sentinels with the non-commissioned officer coming off duty.

E. The length of the tour of duty will depend upon the number of officers and non-commissioned officers on duty. Normally each tour should be, by night, two hours; by day, four hours. This may be modified, however, so that all officers and non-commissioned officers will have an equal amount of this duty while in the trenches.

F. Non-commissioned officers, after posting sentinels, will report "all is well" or otherwise to the officers on duty.

G. No man will be detailed for a duty in the trench without being given suitable warning of this duty and be informed at which hour he will come on duty.

H. The Company Commander will be responsible for sending any report required by Battalion Headquarters.

2. **Sentries.**—A. The number of sentry posts required will depend on the assumed propinquity or distance of the enemy, strength of obstacles, ease with which sentry posts can be re-enforced and other local conditions. Normally by day this should be one sentinel for each platoon and at night three double sentinels for each platoon. There must be sentries enough to insure alarm being given promptly in case of attack and that local resistance is sufficient until help can arrive.

B. The next relief will remain within an easy distance of the sentry on post, usually in shelters provided for this purpose.

C. Every sentry is to be regularly posted by a non-commissioned officer who will explain to him his duties and ascertain that the sentry is aware of the position of the section and platoon commanders and of the sentries on either side, and whether there are any patrols or working parties out in front.

D. Every sentinel will report when an officer passes his post, "All is well," or otherwise.

E. Every sentinel by day will be provided with a head-cover to blend with the ground (this may be improvised), and while observing the ground to the front will remain perfectly still. An empty sand bag or some other suitable material may be utilized for this purpose.

3. **Patrols.**—A. It is the duty of all the troops holding the front lines to establish a command of the ground in front of their parapet up to the enemy's wire. This can be done by extended and constant patrolling by night and reconnaissance by day so that the ground is thoroughly well known to as large a portion as possible of officers and men and so no enemy can move or remain in his front by night or day without detection. One of the particular duties of these patrols is to observe the condition of the wire entanglements.

B. Every patrol must have definite orders as to its mission; broadly speaking, patrols may be divided into two classes: (1) reconnoitering patrols, (2) fighting patrols.

C. The first duty of reconnoitering patrols is to obtain the information for which they are sent out. They fight only in self-defense or if any especially favorable opportunity arises to inflict loss upon the enemy without prejudice to their mission. They usually consist of two to six men, under an officer or non-commissioned officer.

D. Fighting patrols are sent out for the express purpose of causing loss or damage to the enemies by such means as engaging the enemy's patrols or working parties, or by raiding saps, listening posts or trenches. For identification purposes they should always endeavor to secure at least one prisoner. Their strength depends upon the resistance they are likely to meet with.

E. Company commanders are responsible for the orders given to patrols, subject to any instructions which may be issued by higher authority. They are also responsible that all troops, whom it concerns, including companies on both flanks, are warned when and where patrols will be out, length of time they will be out, and of the points to which they will return.

F. Information gained by patrols is of little value unless transmitted quickly to those whom it concerns. Patrol reports will be made out by the commander of the patrol immediately upon his return and sent at once to the company commander unless orders to the contrary have been given.

4. **Stand To.**—A. "Stand to" will take place one-half hour after a relief has been posted and one-half hour before being relieved. At this parade every available man will be present. Rifles, equipment, clothing, etc., will be inspected. Firing steps will be tested as soon as practicable after reliefs have been posted to see that each man can fire on the foot of the nearest part of the wire entanglement which he is required to cover by his fire. The same procedure will be gone through at the "stand to" one-half hour before being relieved. Other "stand tos" may be ordered in the discretion of the company commander. These should be sufficiently often to insure that every man turns out promptly and knows his place in case of attack.

5. **Machine Guns.**—A. The concealment of machine gun emplacements is important. Consequently, it is only at night or in case of attack that machine gun

crews will occupy their defense emplacements. At night guns should take up other position than their defense emplacements and fire a stated number of rounds in order to test out the guns and mislead the enemy as to their numbers and real emplacements, after which they will at once go back to their defense emplacements.

B. The guns and their crews will be tactically under the orders of the company commander in whose sector they are located, but no alteration will be made by him in their disposition or arcs of fire; he will, however, bring before the senior machine gun instructor any suggestions for improvements in machine gun dispositions for defense.

C. Two men per gun will always be on duty with the guns.

D. Range cards will be prepared and kept with each gun.

E. Officers and non-commissioned officers in charge of guns will remain in close proximity to the guns. They will frequently inspect their guns, emplacements, etc. They are responsible for cleanliness and maintenance of the emplacements.

F. Machine gun commanders are responsible for guns always being ready for action, and that emplacements are clear of all material except such as is required for the service of the guns; that embrasures or loopholes are kept clear of all obstructions which may interfere with fire or view.

6. **Reliefs.**—A. Reconnaissance. Prior to taking over the line of trenches the company commander, accompanied by his senior First Lieutenant and First Sergeant, will reconnoiter the trenches.

B. Points to be noted by the company commanders. The following points will be specially noted by company commanders before taking over trenches:

1. Plan of occupation (number of men holding lines to be taken over, their distribution and duties).

2. Shelter accommodations.
3. Work being done and proposed.
4. Conditions of the wire and defenses generally.
5. Information as to the enemy, his habits, snipers, and the work he is doing, etc.
6. Water supply.
7. Artillery support.
8. Communications.
9. Danger points.
10. Location and condition of stores.
11. Liaison.

7. **Guides.**—A. Arrangements will be made between the company commanders of the incoming and outgoing companies as to the rendezvous where guides will be provided by the latter to conduct the incoming troops to the trenches.

B. One guide per platoon, one for each company and one for battalion headquarters will be provided. These guides must know the exact spot where they will meet the relief troops and the best way to conduct the units to the particular section of the trench they will occupy.

8. **Smoking and Talking.**—A. After leaving the rendezvous there will be no smoking and talking until arrival in trenches. Strictest march discipline will be enforced on the way to and from the trenches.

9. **Procedure on Arrival at Trenches.**—A. The troops being relieved will not leave the trenches until the relieving troops are in position and the new sentries have been posted, all trench stores have been handed over and receipted for, and orders to move have been received from the Company Commander.

B. Platoon commanders will at once personally see that all sentinels are properly posted, that the non-commissioned officer is on duty, that every man knows his place in case of attack, and that both flanks of his platoon are in liaison with the adjoining platoon.

C. When reliefs are completed, Platoon Commanders will report to that effect to the Company Commander.

D. Men will not be dismissed until the Company Commander has received the reports from all of his Platoon Commanders that everything is in order.

10. **Log Books.**—A. Each Company Commander will keep a log book in which will be entered:

1. Work done.
2. Number of men working.
3. Hours worked.
4. Any information obtained from sentries, patrols, or other sources.

They will also enter in this book a list of any trench stores that come into their possession.

11. **Equipment.**—A. Equipment will be worn in the front trenches. Haversacks, packs, and trench tools need not be worn, these will be left in the shelters. In support and reserve trenches, they will be worn at the discretion of the Company Commander.

B. Ration and carrying parties will wear equipment and carry rifles unless otherwise ordered.

C. Pieces will be assumed to be loaded and locked at all times.

D. In the firing trenches bayonets will be fixed at night.

E. Non-commissioned officers and men of the firing line will at all times be in possession of their rifles and bayonets. The rifles of men in the support and reserve trenches or dugouts will be where they can be quickly seized, even in the dark.

12. **Stretcher Bearers.**—A. Stretcher bearers will be stationed at a point designated by the Company Commander.

13. **Discipline.**—A. Sleeping in the firing trenches will not be permitted.

B. No man will enter the firing trench, except in discharge of his duty, unless so ordered by his Company or Platoon Commander.

C. Sentries will remain standing unless the height of the parapet renders this impossible.

D. Saluting and standing at attention, etc., will be as carefully adhered to as when in camp except that sentinels will not let this interfere with their duties.

14. **Rations and Cooking.**— A. Cooking will be done in the rear of the reserve at a point to be designated.

B. Company Quartermaster Sergeants will accompany ration parties, which will be limited in size to the actual needs for bringing up cooked rations from the point where cooking is done, to the trenches. At no time should this exceed ten per cent of the effective strength of the unit from which sent.

C. Care will be taken that as little noise as possible be made by these carrying parties.

15. **Sanitation.**— A. The importance of strict attention to sanitation will be impressed upon all ranks.

B. The commanding officer of each unit is responsible for sanitation in his sector. He will make frequent inspections of latrines, refuse pits and trenches to ascertain that no unsanitary conditions exist.

C. Latrines will be constructed in the trenches, excreta kept covered at all times and such disinfectants as may be provided will be used at regular intervals. When filled within eighteen inches of the top, pits will be filled with earth and labeled.

D. Urinal cans will be provided and men required to use these cans and contents will be emptied as often as necessary into deep pits at least one hundred yards from the trenches. Empty tin cans, particles of food and other refuse will be collected in receptacles kept in the trenches for that purpose and carried to the rear and buried in pits. This is usually done at night.

Emergency Dumps for Companies (Material).

1. Any large shell crater will do for these or holes can be dug 10' x 10' x 5' deep.

CONTENTS OF DUMP.

- 10 rolls barbed wire.
- 8 coils French accordion wire.
- 30 long screw stakes.
- 50 short screw stakes.
- 4 prepared wire blocks (gooseberries).

STORES FOR COMPANY.

- 100 very flares.
- 6 S. O. S. rockets.
- 2 vermal sprayers.
- 1 strombos horn.
(gas alarm)
- rubber boots.
- periscopes.
- 200 revolver ammunition.
- 1 log book.
- 1 set maps.
- 1 set air photos.
- 1 defense scheme.

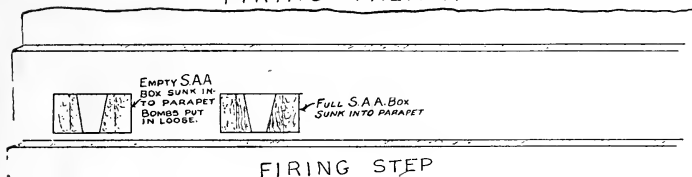
2. These are taken over and signed for. Each dug-out must have a gas blanket and some form of gas alarm (usually empty shell case.)

STORES AT BATTALION HEADQUARTERS.

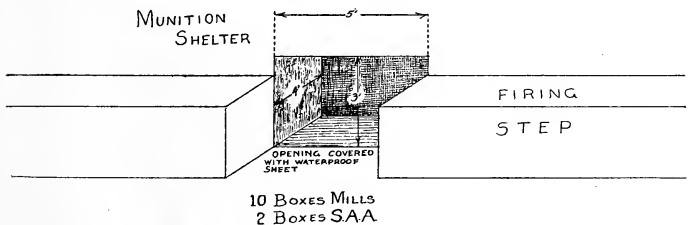
- 1 strombos horn.
- 2 vermal sprayers.
- 300 very flares.
- 20 S. O. S. rockets.
- 500 revolver ammunition.
- 50 ground flares.

FIRING TRENCH

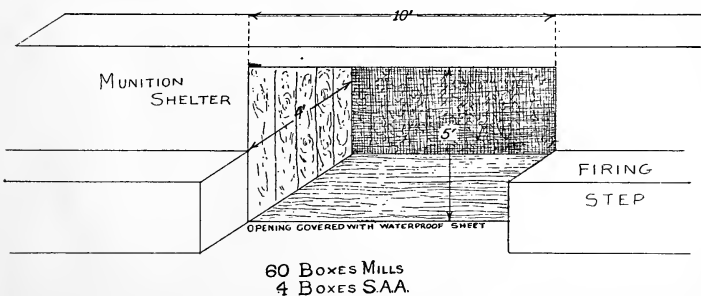
PLATE #28



INTERMEDIATE



SUPPORT LINE



Conclusion.

The present army of the United States had its inception at Plattsburg in 1915. The first regiment of the Business Mens' Training Camp will go down in history as the first chapter of preparedness.

The training camps of 1916, not only at Plattsburg, but at various other places throughout the United States, constituted the second chapter.

We are just finishing chapter three in the officers' training camps of 1917.

This book brings together the essential points of the instruction given at the second and probably the last of the officers' training camps at Plattsburg, in such a way that an officer may refresh his memory when he is about to take up with his men any of the subjects covered.

It is hardly necessary to add that no attempt has been made to cover fully any branch of the work. The bibliography provides for further study and the books in it should be at every officer's command.

As the war progresses many changes will be made; not only will methods change but some branches now considered essential may be cast aside as useless.

Nothing but work can make the pages of any military book have real meaning. This book gives what are now considered the essentials of military training. If it has brought to the conscientious officer points he might otherwise have forgotten to the detriment of his command, it will have served its purpose.

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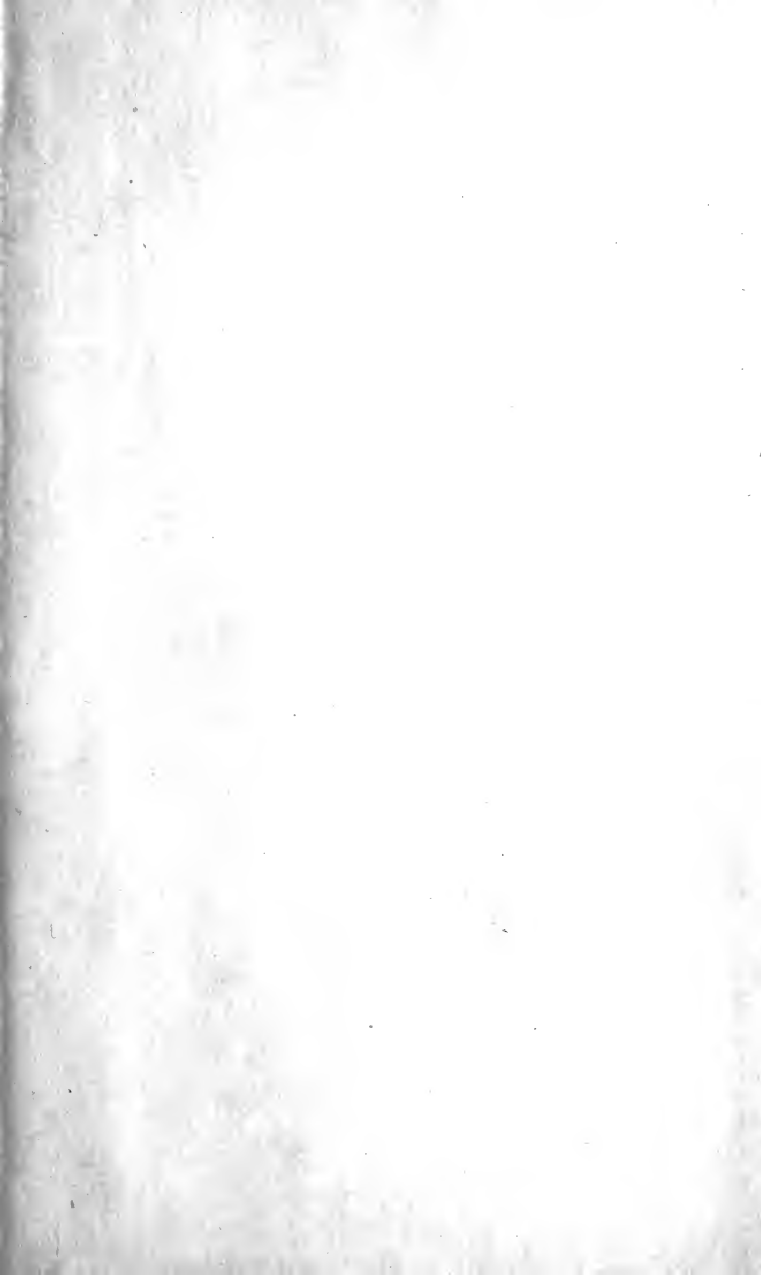
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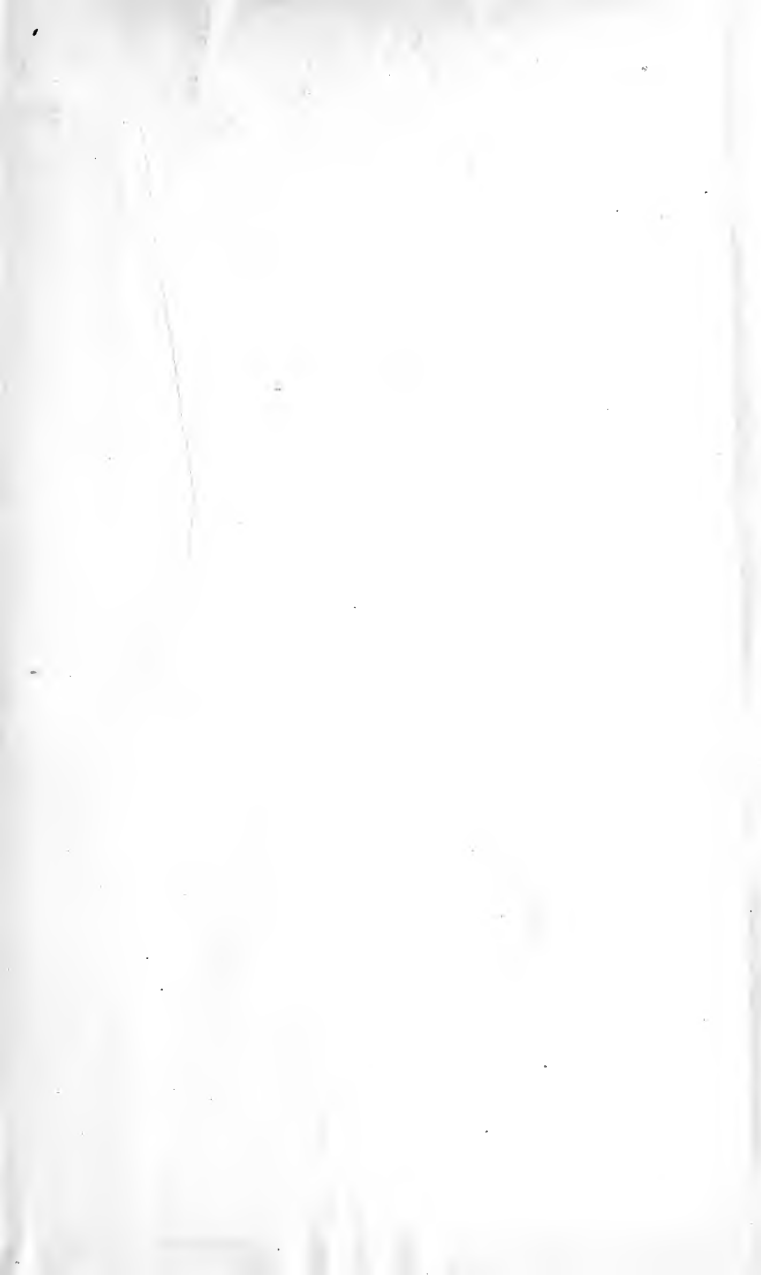
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